# Table of Contents

## INTRODUCTION
- Standard Features ................................................. 1
- Operational Features .............................................. 1
- Diagnostic & Service Features ................................. 2
- Protective & Safety Features ..................................... 2
- Optional Features .................................................. 2
- Conditions & Data Displayed ................................. 3
- Functions Displayed ............................................... 3
- Alarms Displayed .................................................. 3
- Historical Data Displayed ..................................... 3
- Programmable Selections ...................................... 3-4

## DAP-II PROGRAMMING
- Push Button Functions ........................................ 5
- Automatic Diagnostic Self-Test ................................. 6
- Menu 1 - Temperature & Humidity Setpoints ............. 7
- Menu 2 - Last 24 Hours Temperature & Humidity .......... 7
- Menu 3 - Percent Capacity & Average Last Hour .......... 7
- Menu 4 - Equipment Runtimes ................................ 7
- Menu 5 - Alarm History - Clear Alarm History ........... 7
- Menu 6 - Password ................................................. 7
- Menu 7 - Change Temperature Setpoint ................. 8
- Menu 8 - Change Temperature Deadband ................... 8
- Menu 9 - Change High Temperature Alarm Limit .......... 8
- Menu 10 - Change Low Temperature Alarm Limit ....... 8
- Menu 11 - Change Humidity Setpoint ....................... 8
- Menu 12 - Change Humidity Deadband ....................... 8
- Menu 13 - Change High Humidity Alarm Limit ........... 8
- Menu 14 - Change Low Humidity Alarm Limit ............. 8
- Menu 15 - Mode & Stage Response Time ................... 8
- Menu 16 - Compressor Lead/Lag Sequence ................ 9
- Menu 17 - Reset Equipment Runtime ....................... 9
- Menu 18 - Audio Alarm Mode .................................. 9
- Menu 19 - Automatic Self-Test Acknowledge ............ 9
- Menu 20 - Manual Diagnostics ................................. 9-10
- Menu 21 - Humidity Anticipation ............................ 11
- Menu 22 - Compressor Short-Cycle Alarm ................. 11
- Menu 23 - Compressor Supplements to E-Saver .......... 11
- Menu 24 - Dehumidification Mode ......................... 11
- Menu 25 - Low Discharge Temp Alarm Limit ............ 11
- Menu 26 - Power Problem or Restart Mode .......... 11
- Menu 27 - System Start Delay .................................. 11
- Menu 28 - Message for Optional Alarm Input #1 ....... 12
- Menu 29 - Delay for Optional Alarm Input #1 ........... 12
- Menu 30 - Message for Optional Alarm Input #2 ....... 12
- Menu 31 - Delay for Optional Alarm Input #2 ........... 12
- Menu 32 - Message for Optional Alarm Input #3 ....... 12
- Menu 33 - Delay for Optional Alarm Input #3 ........... 12
- Menu 34 - Message for Optional Alarm Input #4 ....... 13
- Menu 35 - Delay for Optional Alarm Input #4 ........... 13
- Menu 36 - Remote Alarm #1 Selection ..................... 13
- Menu 37 - Remote Alarm #2 Selection ...................... 13
- Menu 38 - Remote Alarm #3 Selection ...................... 14
- Menu 39 - Person to Contact on Alarm .................... 15
- Menu 40 - Define Password .................................. 15
- Menu 41 - Humidifier Autoshutdown Timer .............. 15
- Menu 42 - Firestat Temperature Alarm Limit ........... 15
- Menu 43 - Scheduled Normal Maintenance ............... 15
- Menu 44 - Temperature Scale ................................. 15
PROCEDURE TO UNLOCK MENUS 50-63

DAP-II CONTROL LOGIC

Processor Self-Test
System Start Delay
Blower
Compressor Cooling
Chilled Water Cooling
E-Saver & Aux. Chilled Water Cooling
E-Saver & Aux. Chilled Water Cooling w/ Comp. Supplement
Reheat
Humidification
Dehumidification
Dehumidification for Chilled Water
Automatic Flush Cycle for Chilled Water
Humidifier Autoflush Timer Control
Mode & Stage Response Time
Humidity Anticipation
Manual Override
Temperature & Humidity Sensor Problem
Compressor Short-Cycle Alarm
Power Failure Restart Alarm
No Airflow Alarm
Dirty Filter Alarm
Humidifier Failure Alarm
Firestat Alarm
High Temperature Alarm
Low Temperature Alarm
High Humidity Alarm
Low Humidity Alarm
Low Discharge Temperature Alarm
Low Voltage Alarm
Scheduled Maintenance Required Alarm
High Pressure / Internal Overload Compressor Alarm
Low Pressure Compressor Alarm
Person to Contact on Alarm
Smoke Alarm
High Condensate Water Level Alarm
Fan Motor Overload Alarm
No Water Flow Alarm
Standby Pump on Alarm
UPS / Alternate Power on Alarm
Reheat Inhibited Alarm
Humidification Inhibited Alarm
Humidification and Reheat Inhibited Alarm
Custom Message Alarm
DATA ALARM PROCESSOR-II

The Data Alarm Processor-II (DAP-II) offers the definitive answer for precision environmental control. The DAP-II control system not only controls and monitors temperature, humidity, airflow, and cleanliness, it provides component run times, alarm history and an automatic self-test of the microprocessor. All messages are presented in a clear vernacular format and sequentially displayed on a backlit, liquid crystal display (LCD). The DAP-II can interface with the Data Aire PC (DAPC) Network and the Data Aire Remote Telecommunication System (DART-200).

STANDARD FEATURES

STAND ALONE PANEL
Service terminals or additional devices are not required for programming or monitoring functions.

MICROPROCESSOR BASED
State-of-the-art technology and reliability in a programmable solid state control panel.

SMOOTH KEYBOARD TYPE SWITCHES
High reliability, flat, sealed switches with tactile feedback.

TWO ROW, 80 CHARACTER, BACKLIT, SUPERTWIST LIQUID CRYSTAL DISPLAY (LCD)
Information displayed and presented in a format that is easily viewed and understood.

ALL SETTINGS ARE PROGRAMMABLE FROM FACE OF PANEL
 Expedient and user-friendly.

FORWARD & BACKWARD MENU ACCESS
Accelerates programming with flexible operation.

MULTI-LEVEL PASSWORD ACCESS
Control unauthorized changes to settings and system functions.

DATABASE OF UNIT AND ROOM CONDITIONS
Historical data that facilitates service, apparatus setup, and fine-tuning of setpoints.

BATTERY BACKUP FOR HISTORICAL DATA
Extensive historical data preserved by integral battery backup in case of a power failure.

MENUS FACTORY PROGRAMMED
Menus that pertain to the type and method of cooling, reheat & humidification based on the unit components and options.

PROGRAMMED SETTINGS SAVED IN EEPROM MEMORY
Nonvolatile memory stored so all control settings and operational parameters are secured indefinitely even during power outage.

FACTORY-CALIBRATED TEMPERATURE & HUMIDITY SENSORS
Accurate and consistent regulation, especially in multiple unit applications.

AUTOMATIC SELF-TEST DIAGNOSTICS
Affirms the processor and selected components are functioning properly at power on and continuously during operation.

OPERATIONAL FEATURES

SEQUENTIAL LOAD ACTIVATION
Time and temperature-based logic that sequentially starts and stops stages of cooling and reheat.

COMPRESSOR SHORT CYCLE CONTROL
Prevents excessive compressor wear by using restart and anti-cycle limits.

AUTOMATIC OR MANUAL RESTART
Method for restart after power failure is programmable.

SUPPLEMENTAL COMPRESSOR OPERATIONS DURING ENERGY SAVER MODE
Extends the savings from Energy Saver by allowing 1 or 2 compressors to supplement operation as needed when Energy Saver alone is not sufficient.

TEMPERATURE ANTICIPATION
Responds to varying rates of temperature change.

DEHUMIDIFICATION MODE LOCKOUT
Inhibits dehumidification if not required for system performance.

START TIME DELAY
Programmable time delay staggers the start-up of multiple units to prevent high power demand peaks.
DIAGNOSTIC & SERVICE FEATURES

ALARMS DISPLAYED IN ORDER OF OCCURRENCE
Sequence with time of occurrence assist in diagnosing the cause of alarms.

PROGRAMMABLE DELAYS FOR OPTIONAL ALARMS
Deters nuisance and false alarms caused by temporary or transient conditions.

MANUAL DIAGNOSTIC PROGRAM
Accessible procedures for testing the processor and major system components.

MANUAL OVERRIDE FOR BLOWER, COOL 1 & 2, HEAT 1, HUMIDIFICATION & WATER VALVE
The control circuit is operable even with processor not functioning.

PROTECTIVE & SAFETY FEATURES

METAL SHELL ENCLOSURE WITH SEALED FRONT CONTROL PANEL
Electromagnetic interference (EMI) protection and general protection against environmental contamination and handling damage.

WATCH DOG TIMER
Automatically resets the circuit board, clears any corrupted memory, and restarts the system with minimal interruption in case of an unfiltered transient signal.

OPTO-COUPLER SIGNAL INPUTS
Isolates the circuit board from electrical noise or static from contactors, compressors, motors, etc., which can contaminate the power at the circuit board.

PROTECTED 24 VAC POWER INPUT
Fuse, Metal Oxide Varistor (MOV), and Transient Voltage Suppressor react to interrupt the power from the circuit board if excessive amperage or overvoltage condition is detected.

OPTIONAL FEATURES

MODULATING HUMIDIFIER CONTROL
Proportional control of Steam Generator humidifier provides additional refinements in performance. Optional Expansion Card required.

HUMIDIFIER AUTOFLUSH CYCLE
Adjustable flush cycle for Infrared and Immersion type Humidifiers to reduce deposit buildup. Optional Expansion Card required.

TWO ADDITIONAL REMOTE ALARMS
Group or specific alarm selection for remote alarm contact. Optional Expansion Card required.

CONDITIONS & DATA DISPLAYED

CURRENT PERCENT OF CAPACITY UTILIZED
- Compressor
- Humidifier
- Reheat
- Water Valve

TEMPERATURE SETPOINT
- °F or °C

CURRENT TEMPERATURE
- °F or °C

HUMIDITY SETPOINT
- Percent of RH

ADJUSTABLE ALARM LIMITS
Threshold levels for temperature and humidity alarms are programmable.

PROGRAMMABLE REMOTE ALARM
Group or specific alarm selection for remote alarm contact.

FOUR PROGRAMMABLE OPTIONAL ALARMS
In addition to the standard alarms, there are four programmable alarms available.

SELECT ALARMS OPTIONALLY DISABLED
Nonessential alarms can be turned off.

AUDIO ALARM TONE
Programmable tone pattern for diverse space noise conditions.

ISOLATION TRANSFORMER
Protection against ground loops, ground shorts, wiring errors, and conducted electrical interference.

HEAVY GROUND PLANES & POWER FOILS
Large ground plane areas and wide power runs minimize disturbances caused by EMI and other types of electrical interference.

SWITCHING POWER SUPPLY
Allows for wide AC input voltage fluctuation to reduce the effects of a power blackout while still maintaining circuit board operation.

FUSED RS-485 NETWORK LINES ON NETWORK COMMUNICATION CARD
 Disconnects the circuit board from the source of current to protect the circuit board components.

NETWORK BYPASS RELAYS ON NETWORK COMMUNICATION CARD
Prevents a single unit from disrupting the communication network by automatically disconnecting the problem unit from the circuit.

RS-485 NETWORK SYSTEM
Monitoring and control of 200+ units from a central location with a Data Aire PC Network or Data Aire Remote Telecommunication System. Optional Network Communication Card required.

ANALOG INPUTS (4-20 Ma or 0-10 VDC signal)
Output values of two external analog sensors can be read on the processor display. Optional Analog Module required.

UNDERFLOOR WATER DETECTION CABLE
Provides continuous water detection cable to encircle the entire Data Aire unit. Optional Water Detection Module required.

CURRENT HUMIDITY
- Percent of RH

CURRENT DISCHARGE AIR TEMPERATURE or CHILLED WATER TEMPERATURE
- °F or °C

UNIT OR NETWORK ID#
- 001 - 260

ZONE #
- 0 - 99

* Some of the Optional Features and Data Displayed Require Additional Components and/or Sensors.
FUNCTIONS DISPLAYED

COOLING
- 1st Stage
- 2nd Stage
- 3rd Stage
- 4th Stage

REHEAT
- 1st Stage
- 2nd Stage
- 3rd Stage
- Hot Water

ALARMS DISPLAYED

HIGH TEMPERATURE WARNING
- Current xx °F

LOW TEMPERATURE WARNING
- Current xx °F

HIGH HUMIDITY WARNING
- Current xx % RH

LOW HUMIDITY WARNING
- Current xx % RH

HIGH PRESSURE/INTERNAL OVERLOAD COMP: 1
- Manual Reset Required

HIGH PRESSURE/INTERNAL OVERLOAD COMP: 2
- Manual Reset Required

LOW PRESSURE COMPRESSOR 1
- Automatic Reset

LOW PRESSURE COMPRESSOR 2
- Automatic Reset

UNDER FLOOR WATER DETECTION
- Check Probe

NO AIRFLOW
- Check Belt & Motor

DIRTY FILTER
- Check Filters

HUMIDITY FAILURE
- Check Water Pressure

MANUAL OVERRIDE
- Check Bypass Switches

FIRESTAT TRIPPED
- Unit Shutdown

LOW VOLTAGE WARNING
- Check Voltage

HISTORICAL DATA DISPLAYED

EQUIPMENT RUNTIMES
- Blower
- Compressor 1 & 2
- Reheat Strip 1, 2 & 3
- Dehumidification

ALARM HISTORY
- Last 10 Alarms & Time Since Occurrence

PROGRAMMABLE SELECTIONS

TEMPERATURE SETPOINT
- 65 °F - 85 °F

TEMPERATURE DEADBAND
- ±1 °F - ±5 °F

HIGH TEMPERATURE ALARM LIMIT
- 70 °F - 90 °F
- Disable High Temperature Alarm

LOW TEMPERATURE ALARM LIMIT
- 55 °F - 75 °F
- Disable Low Temperature Alarm

HUMIDITY SETPOINT
- 25 % - 70 % RH

HUMIDITY DEADBAND
- ±1.0 % - ±15.0 % RH

HIGH HUMIDITY ALARM LIMIT
- 35 % - 90 % RH
- Disable High Humidity Alarm

CHILLED WATER FLOW (BASED ON VDC OUTPUT)
- 10 % - 100 %

ENERGY SAVER

DEHUMIDIFICATION

HUMIDIFICATION

POWER FAILURE RESTART
- Power Failure or Restart

COMPRRESSOR SHORT-CYCLE
- Warning

TEMPERATURE SENSOR ERROR
- Sensor Problem

HUMIDITY SENSOR ERROR
- Sensor Problem

MAINTENANCE REQUIRED
- Scheduled Maintenance Due

CUSTOM MESSAGE • (PROGRAMMED BY FACTORY)
- Up to 40 Character Message

LOCAL ALARM •
- See Tag Inside Door

DISCHARGE AIR SENSOR ERROR •
- Sensor Problem

FAN MOTOR OVERLOAD •
- Check Motor Amperage

NO WATER FLOW •
- Check Water Pump

SMOKE DETECTOR •
- Unit Shutdown

STANDBY PUMP ON •
- Check Primary Water Pump

PERSON TO CONTACT ON ALARM •
- Up to 25 Character Message

HIGH CONDENSATE WATER LEVEL •

LAST 24 HOURS
- High & Low Temperature & Humidity

AVERAGE PERCENT OF CAPACITY LAST HOUR
- Compressor(s)
- Humidifier
- Reheat Strips
- Water Valve

LOW HUMIDITY ALARM LIMIT
- 10 % - 65 % RH
- Disable Low Humidity Alarm

MODE & STAGE RESPONSE TIME
- 1 - 5 Minutes

COMPRRESSOR LEAD/LAG SEQUENCE
- Automatic
- 2 Lead

RESET EQUIPMENT RUNTIME
- Blower
- Condenser
- Compressor 1
- Compressor 2
- Reheat Strip 1
- Reheat Strip 2
- Energy Saver
- Dehumidification
- Chilled Water Cooling
- Reset All to Zero

AUDIO ALARM MODE
- None
- Long
- Short
- Full

* Some of the Functions, Alarms, and Historical Data Displayed Require Additional Components and/or Sensors.
PERSON TO CONTACT ON ALARM
- Contact Message Not Used
- Data Processing Manager
- Maintenance Engineer
- Service Company
- 25 Space Custom Message (Factory Programmed)

DEFINE PASSWORD
- 00 - 99

HUMIDIFIER AUTOFLUSH TIMER
- Autoflush Timer Not Used
- 6 Hours
- 12 - 96 Hours in 12 Hour Increments

FIRESTAT TEMPERATURE ALARM LIMIT
- Unit Shutdown & Alarm At: 100 °F - 150 °F

SCHEDULED NORMAL MAINTENANCE
- 1 - 1000 Hours
- Off

TEMPERATURE SCALE
- Fahrenheit
- Centigrade

CONTROL LOGIC
- Setpoint Deviation (Standard)
- Smart Logic
- PID

UNIT & NETWORK IDENTIFICATION NUMBER
- 001 - 260

CALIBRATE TEMPERATURE SENSOR
- ±0.00 °C - 20.0 °C

CALIBRATE HUMIDITY SENSOR
- ±0.00 - 30.0 % RH

CALIBRATE DISCHARGE AIR SENSOR OR CHILLED WATER TEMPERATURE SENSOR
- ±0.00 °C - 9.9 °C
- Sensor Not Installed

COMRESSOR(S)
- None
- Primary/Secondary
- Primary/Primary
- Four Tandem Compressors
- Expansion card required

REHEAT STAGES
- None
- 1
- 2
- 3
- Hot Water

HUMIDIFIER
- None
- Computer, Non-Modulating
- Comfort, Non-Modulating
- Computer, Modulating
- Comfort, Modulating

WATER VALVE MODE
- None
- Chilled Water Cooling
- Energy Saver Cooling
- Auxiliary Chilled Water Cooling

WATER VALVE VOLTAGE RANGE
- 0 - 10 VDC
- 4 - 7 VDC
- 6 - 9 VDC
- 7 - 10 VDC

REVERSE ACTING WATER VALVE
- Yes
- No

NETWORK PROTOCOL
- Data Aire Poll and Respond
- Johnson Control Metasys N2
- Johnson Control Interface card required

ANALOG MODULE SENSOR SETUPS
- AM 1 - Select Sensor 1 Name
- AM 2 - Specify Sensor 1 Units of Measure
- AM 3 - Specify Sensor 1 Signal Range
- AM 4 - Specify Sensor 1 Minimum Valve
- AM 5 - Specify Sensor 1 Maximum Valve
- AM 6 - Set Sensor 1 Calibration
- AM 7 - Select Sensor 2 Name
- AM 8 - Specify Sensor 2 Units of Measure
- AM 9 - Specify Sensor 2 Signal Range
- AM 10 - Specify Sensor 2 Minimum Valve
- AM 11 - Specify Sensor 2 Maximum Value
- AM 12 - Set Sensor 2 Calibration
- AM 13 - Set Water Detect Threshold

Some of the Programmable Selections Require Additional Components and/or Sensors.
DATA ALARM PROCESSOR II
PROGRAMMING

PUSH BUTTON FUNCTIONS

The Data Alarm Processor-II panel has eight tactile feedback-type push buttons on the face of the panel. All programming functions and/or settings are done from the face of the panel. Their functions are as follows:

ON - Turns the power on to the processor.

OFF - Turns the power off to the processor.

MENU ▲ - Advances the menus in ascending order of 1 thru 63.
- Saves new settings into memory.

MENU ▼ - Advances the menus in descending order of 63 thru 1.

SELECT ▲ - Selects an option or value in ascending order.

SELECT ▼ - Selects an option or value in descending order.

ALARM SILENCE - Silences the audio alarm

EXIT - Saves the new settings, exits the menu function and returns the panel to its normal operating mode.

Important Note:

The RAM SIGNATURE test often displays “FAIL” on initial start-up because the RAM does not have any stored data. Simply press “SELECT ▲” to bypass the “FAIL” message. Once the processor is on-line and operating, the RAM will collect data and the test should pass on future restarts. On start-up, remember to remove the protective paper on the battery before turning the unit on, otherwise the RAM SIGNATURE will fail on future restarts.

Each time a MENU or SELECT button is pressed, it will advance to the next menu or selection. If the button is held down, the menus or selections will advance at a rapid rate. If there is no button activity for three (3) minutes, the panel will return to its normal operating mode.

When a menu first appears, it will have a menu number and title. The first time a SELECT button is pressed, the current value or option in memory is displayed. Additional presses of a SELECT button will cause alternate values, options or selections to be displayed. The SELECT button should be pressed until the desired value, option or selection is displayed. After the desired value, option or selection has been chosen, the MENU button is pressed to save the last displayed entry into memory and to advance to the next menu display. The EXIT button can be pressed at any time to return the panel to its normal operating mode. In this mode, the panel will scroll and display the current system Functions, Temperature, Humidity, Unit ID# and Zone#. If an alarm is present, it will also be displayed.

Example:

<table>
<thead>
<tr>
<th>COOLING 2ND STAGE</th>
<th>HUMIDIFICATION ▼</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEMPERATURE: 72°F</td>
<td>HUMIDITY: 43%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>COOLING 2ND STAGE</th>
<th>HUMIDIFICATION ▼</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNIT ID # 01</td>
<td>ZONE # 01</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>COOLING 2ND STAGE</th>
<th>HUMIDIFICATION ▼</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIRTY FILTER ALARM:</td>
<td>CHECK FILTERS</td>
</tr>
</tbody>
</table>
**AUTOMATIC DIAGNOSTIC SELF-TEST**

Press the POWER "ON" button to energize the panel. The following messages will be displayed as the panel proceeds through the **Automatic Diagnostic Self-Test**.

If there is a failure during the Automatic Self-Test, the display will stop scrolling and only the message with the failure will be displayed. To allow the processor to continue the Self-Test after a failure has been displayed, press the **MENU ▲** button. See Menu 19 for Automatic Self-Test Acknowledge toggle. When the Self-Test is complete, the timed Start Delay will be displayed.

After the timed Start Delay is complete, the unit will start and the processor will be in its normal operating mode. The following pages are typical displays for each menu, with available selections, options and/or values. If a selection has a default option or value, it is also listed.
1 - TEMPERATURE & HUMIDITY SETPOINTS

(PRESS A SELECT BUTTON TO DISPLAY THE CURRENT TEMPERATURE SETPOINT)
TEMPERATURE SETPOINT IS: xx°F
(PRESS A SELECT BUTTON AGAIN TO DISPLAY THE CURRENT HUMIDITY SETPOINT)
HUMIDITY SETPOINT IS: xx%

(PRESS MENU ▲ TO ADVANCE TO MENU 2)

2 - LAST 24 HOURS TEMPERATURE & HUMIDITY

(PRESS A SELECT BUTTON TO DISPLAY TEMPERATURE INFORMATION)
TEMPERATURE: xx°F LAST 24 HOURS: xx-xx°F
(PRESS A SELECT BUTTON AGAIN TO DISPLAY HUMIDITY INFORMATION)
HUMIDITY: xx% LAST 24 HOURS: xx-xx%

(PRESS MENU ▲ TO ADVANCE TO MENU 3)

3 - PERCENT CAPACITY & AVERAGE LAST HOUR

(PRESS A SELECT BUTTON TO DISPLAY COMPRESSOR INFORMATION • EACH TIME A SELECT BUTTON IS Pressed THE NEXT ITEMS INFORMATION WILL BE DISPLAYED)
COMPRESSOR: xxx% LAST HR AVERAGE: xxx%
REHEAT STRIPS: xxx% LAST HR AVERAGE: xxx%
HUMIDIFIER: xxx% LAST HR AVERAGE: xxx%
WATER VALVE: xxx% LAST HR AVERAGE: xxx%

(PRESS MENU ▲ TO ADVANCE TO MENU 4)

4 - EQUIPMENT RUNTIMES

(PRESS A SELECT BUTTON TO DISPLAY BLOWER INFORMATION • EACH TIME A SELECT BUTTON IS Pressed THE NEXT ITEMS INFORMATION WILL BE DISPLAYED)
BLOWER: xxxx HOURS
CONDENSER: xxxx HOURS
COMPRESSOR 1: xxxx HOURS
COMPRESSOR 2: xxxx HOURS
REHEAT STRIP 1: xxxx HOURS
REHEAT STRIP 2: xxxx HOURS
REHEAT STRIP 3: xxxx HOURS
HUMIDIFIER: xxxx HOURS
DEHUMIDIFICATION: xxxx HOURS
ENERGY SAVER COOLING: xxxx HOURS
CHILLED WATER COOLING: xxxx HOURS

(PRESS MENU ▲ TO ADVANCE TO MENU 5)

5 - ALARM HISTORY

(PRESS A SELECT BUTTON TO DISPLAY THE LATEST ALARM INFORMATION • EACH TIME A SELECT BUTTON IS Pressed THE NEXT LATEST ALARM INFORMATION WILL BE DISPLAYED • THE LAST TEN (10) ALARMS ARE STORED IN MEMORY)
1 - - (ALARM MESSAGE IS DISPLAYED) -- xxxx HOURS AGO
2 - - (ALARM MESSAGE IS DISPLAYED) -- xxxx HOURS AGO
↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓
10 - - (ALARM MESSAGE IS DISPLAYED) -- xxxx HOURS AGO

USE SILENCE BUTTON TO CLEAR HISTORIES

Clear Alarm History: To clear the alarm history, go to menu 5 and press SELECT ▲ to select “USE SILENCE BUTTON TO CLEAR HISTORIES” then press the SILENCE button to clear the alarm history.

(PRESS MENU ▲ TO ADVANCE TO MENU 6)

6 - ENTER PASSWORD FOR ADDITIONAL MENUS

Entering no password will only allow the user to view menus 1 thru 5. The correct password will allow the user to set all menus from 1 thru 49, and view all factory locked menus 50 thru 63. To access the selections in the factory locked menus 50 thru 63, a specific button sequence is required. Neither the password nor the button sequence will be required again until the user has exited from the menus to normal operating mode, either by pressing the EXIT button or by allowing three (3) minutes to elapse with no button activity. FOR LOCKED MENU ACCESS, PLEASE SEE, “PROCEDURE TO UNLOCK MENUS 50-63”. The panels are shipped from the factory with the default password “00”. When the SELECT button is pressed, the message “PASSWORD DISABLED” will be displayed unless a different password other than “00” has been entered in MENU 40. If a password has been entered and is unknown, the number “40” can be entered to allow access. This is a temporary bypass to allow verification of the programmed password and will be deleted when the EXIT button is pressed or when three (3) minutes has elapsed with no button activity.

(PRESS A SELECT BUTTON TO DISPLAY PASSWORD ENTRY OR STATUS. IF REQUIRED, PRESS EITHER SELECT ▲ OR SELECT ▼ TO ENTER CORRECT PASSWORD NUMBER)

PASSWORD: xx
PASSWORD ALREADY ENTERED
PASSWORD DISABLED
WRONG PASSWORD “DELAY 60 SECONDS” (default 00)
7 - CHANGE TEMPERATURE SETPOINT

(PRESS A SELECT BUTTON TO DISPLAY THE CURRENT TEMPERATURE SETPOINT. TO CHANGE SETPOINT, PRESS EITHER SELECT ▲ OR SELECT ▼ TO ENTER DESIRED SETPOINT)

SET AT: xx°F

(65-85, default 72)

8 - CHANGE TEMPERATURE DEADBAND

(PRESS A SELECT BUTTON TO DISPLAY THE CURRENT TEMPERATURE DEADBAND. TO CHANGE DEADBAND, PRESS EITHER SELECT ▲ OR SELECT ▼ TO ENTER DESIRED DEADBAND)

The Temperature Deadband is a differential over which the processor remains neutral as related to cooling or reheat functions. A wider Deadband will allow a greater swing in temperature before the processor will respond to a change in temperature.

SET AT: x.x°F

(1.0-5.0, default 2.0)

9 - CHANGE HIGH TEMPERATURE ALARM LIMIT

(PRESS A SELECT BUTTON TO DISPLAY THE CURRENT HIGH TEMPERATURE ALARM SETTING. TO CHANGE SETPOINT, PRESS EITHER SELECT ▲ OR SELECT ▼ TO ENTER DESIRED SETPOINT)

SET AT: xx°F

DISABLE HIGH TEMPERATURE ALARM

(70-90, default 80)

10 - CHANGE LOW TEMPERATURE ALARM LIMIT

(PRESS A SELECT BUTTON TO DISPLAY THE CURRENT LOW TEMPERATURE ALARM SETTING. TO CHANGE SETPOINT, PRESS EITHER SELECT ▲ OR SELECT ▼ TO ENTER DESIRED SETPOINT)

SET AT: xx°F

DISABLE LOW TEMPERATURE ALARM

(55-75, default 60)

11 - CHANGE HUMIDITY SETPOINTS

(PRESS A SELECT BUTTON TO DISPLAY THE CURRENT HUMIDITY SETPOINT. TO CHANGE SETPOINT, PRESS EITHER SELECT ▲ OR SELECT ▼ TO ENTER DESIRED SETPOINT)

SET AT: xx%

(25-70, default 50)

12 - CHANGE HUMIDITY DEADBAND

(PRESS A SELECT BUTTON TO DISPLAY THE CURRENT HUMIDITY DEADBAND. TO CHANGE DEADBAND, PRESS EITHER SELECT ▲ OR SELECT ▼ TO ENTER DESIRED DEADBAND)

The Humidity Deadband is a differential over which the processor remains neutral as related to humidification or dehumidification functions. A wider Deadband will allow a greater swing in humidity before the processor will respond to a change in humidity.

SET AT: xx.x%

(1.0-15.0, default 3.0)

13 - CHANGE HIGH HUMIDITY ALARM LIMIT

(PRESS A SELECT BUTTON TO DISPLAY THE CURRENT HIGH HUMIDITY ALARM SETTING. TO CHANGE SETPOINT, PRESS EITHER SELECT ▲ OR SELECT ▼ TO ENTER DESIRED SETPOINT)

SET AT: xx%

DISABLE HIGH HUMIDITY ALARM

(35-90, default 60)

14 - CHANGE LOW HUMIDITY ALARM LIMIT

(PRESS A SELECT BUTTON TO DISPLAY THE CURRENT LOW HUMIDITY ALARM SETTING. TO CHANGE SETPOINT, PRESS EITHER SELECT ▲ OR SELECT ▼ TO ENTER DESIRED SETPOINT)

SET AT: xx%

DISABLE LOW HUMIDITY ALARM

(10-65, default 40)

15 - MODE AND STAGE RESPONSE TIME

(PRESS A SELECT BUTTON TO DISPLAY THE CURRENT SETTING. TO CHANGE THE SETTING, PRESS EITHER THE SELECT ▲ OR SELECT ▼ BUTTON TO ENTER THE DESIRED SETTING)

The Mode and Stage Response Time is a time-based differential over which the processor remains neutral as related to any change in temperature or humidity. This includes different functions as well as staging of individual functions.

RESPONSE TIME: x MINUTES

(0-5, default 1)
In Automatic, the compressor Lead/Lag sequence will change every 168 hours of operation.

LEAD/LAG SEQUENCE: AUTOMATIC (default AUTOMATIC)
1 LEAD
2 LEAD

In Automatic, the compressor Lead/Lag sequence will change every 168 hours of operation.

16 - COMPRESSOR LEAD/LAG SEQUENCE
(Press a select button to display the current sequence. To change sequence, press either select ▲ or select ▼ to select desired sequence)

In Automatic, the compressor Lead/Lag sequence will change every 168 hours of operation.

17 - RESET EQUIPMENT RUNTIES
(Press a select button to display the current hours. Press select ▲ to scroll list. Press silence button to reset a selection to zero hours)

BLOWER: XXXX HOURS
CONDENSER: XXXX HOURS
COMPRESSOR 1: XXXX HOURS
COMPRESSOR 2: XXXX HOURS
REHEAT STRIP 1: XXXX HOURS
REHEAT STRIP 2: XXXX HOURS
REHEAT STRIP 3: XXXX HOURS
HUMIDIFIER: XXXX HOURS
DEHUMIDIFICATION: XXXX HOURS
ENERGY SAVER COOLING: XXXX HOURS
CHILLED WATER COOLING: XXXX HOURS
RESET ALL TO ZERO RUNTIES

18 - AUDIO ALARM MODE
(Press a select button to display the current mode. To change mode, press either select ▲ or select ▼ to enter desired mode)

AUDIO ALARM: NONE (default LONG BEEP)
SHORT BEEP
LONG BEEP
FULL ON

19 - AUTOMATIC SELF-TEST ACKNOWLEDGE
(Press a select button to display the current mode. To change mode, press either select ▲ or select ▼ to enter desired mode)

If the Self-Test Acknowledge is programmed to “ON”, it will permit the processor to proceed through the Diagnostic Self-Test even if a failure is detected, without pressing the/menu ▲ button, and will allow the unit to start.

AUTOMATIC SELF-TEST ACKNOWLEDGE: ON (default OFF)
OFF

THE “MANUAL DIAGNOSTICS MODE” IS PRIMARILY AN AID FOR TROUBLESHOOTING AND SHOULD ONLY BE USED BY A QUALIFIED TECHNICIAN. THE PANEL MUST NOT BE LEFT IN DIAGNOSTIC MODE. TO EXIT MODE, AT ANY TIME, PRESS THE POWER “OFF” BUTTON AND THE PANEL WILL RETURN TO ITS NORMAL OPERATING MODE.

20 - MANUAL DIAGNOSTICS
(Press a select button to display the current mode. To change mode, press either select ▲ or select ▼ to enter desired mode)

STAY IN NORMAL MENU MODE: (default STAY IN NORMAL MENU MODE)
CHANGE TO DIAGNOSTIC MODE:

To proceed through the Manual Diagnostics Program, select “Change to Diagnostic Mode” and press MENU ▲

The D1 - TEST BUTTONS menu will be displayed:

D1 - TEST BUTTONS
MEN: - SEL: - SIL: -
MEN: - SEL: - EXIT:

Press the MENU ▲ button, if the button operates properly an(*) will be displayed. Press the following buttons to display an(*) to confirm proper operation for each button, MENU ▼, SELECT ▲, SELECT ▼, ALARM SILENCE and EXIT. Press both MENU ▲ and MENU ▼ buttons simultaneously to advance to the D2-TEST POWER SUPPLY menu. Press the SELECT ▲ button to test and display the power supply.

D2 - TEST POWER SUPPLY
UNREG = 31.3 REG = 15.3 PASS

Press the MENU ▲ button to advance to the D3 - TEST RELAYS menu. Press the SELECT ▲ button to energize the Evaporative Blower Relay. The blower will start and the following message will be displayed.

D3 - TEST RELAYS
EVAPORATOR BLOWER K5 P2-3
Each time SELECT A is pressed, another relay is energized and the component operates. The Evaporator blower relay remains energized and the blower operates during testing of all the other relays.

The following is a list of relays that can be tested:

<table>
<thead>
<tr>
<th>Relay Type</th>
<th>Number</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Condenser Exp</td>
<td>K12</td>
<td>P6-4,5</td>
</tr>
<tr>
<td>Cool #1</td>
<td>K6</td>
<td>P2-4</td>
</tr>
<tr>
<td>Cool #2</td>
<td>K7</td>
<td>P2-5</td>
</tr>
<tr>
<td>Cool #3</td>
<td>K10</td>
<td>P6-2</td>
</tr>
<tr>
<td>Cool #4</td>
<td>K11</td>
<td>P6-3</td>
</tr>
<tr>
<td>Reheat Strip #1</td>
<td>K8</td>
<td>P2-6</td>
</tr>
<tr>
<td>Reheat Strip #2</td>
<td>K2</td>
<td>P2-7</td>
</tr>
<tr>
<td>Reheat Strip #3</td>
<td>K3</td>
<td>P2-8</td>
</tr>
<tr>
<td>Humidifier</td>
<td>K9</td>
<td>P2-9</td>
</tr>
<tr>
<td>Humidifier Flush</td>
<td>K15</td>
<td>P6-1</td>
</tr>
<tr>
<td>Alarm Relay #1</td>
<td>K4</td>
<td>P2-10,11</td>
</tr>
<tr>
<td>Alarm Relay #2</td>
<td>K13</td>
<td>P6-6,7</td>
</tr>
<tr>
<td>Alarm Relay #3</td>
<td>K14</td>
<td>P6-8,9</td>
</tr>
<tr>
<td>Spare</td>
<td>K16</td>
<td>P6-10,11</td>
</tr>
<tr>
<td>Network Relay</td>
<td>K1</td>
<td></td>
</tr>
</tbody>
</table>

Note: EXP means the optional Expansion Card is required for this relay to be tested.

Press MENU A to advance to D4 - TEST ANALOG OUTPUTS menu. Press SELECT A to display the analog outputs.

| OUT 0 V | READ H2O: 0.082 | HUM: 0.009 |

Press SELECT A to advance to D5 - TEST INPUTS menu. Press SELECT A to display inputs.

| FLOOR WATER: - | 8 9 10 11 - - - - |

Press SELECT A to test Return Air Temperature Sensor, Discharge Temperature Sensor, and Humidity Sensor. When sensors are tested their respective values are displayed. Press MENU A button to advance to D6 - TEST ENVIRONMENTAL SENSORS menu. Press SELECT A to display Return Temperature Sensor.

| Return Temp: 75.0 - 0.0 - 75.0 F |

Press SELECT A to test Return Air Temperature Sensor, Discharge Temperature Sensor, and Humidity Sensor. When sensors are tested their respective values are displayed. Press MENU A button to advance to D7 - VIEW ANTICIPATED HUMIDITY SETPOINT menu. Press SELECT A button to display Anticipated Humidity Setpoint Values.

| Humidity Setpoint: 50.0 - 1.9 * 48.1% |

Press SELECT A to display Anticipated Humidity Setpoint Values.

Press MENU A button to advance to D8 - TEST AUDIO ALARM menu. Each press of SELECT A will test one of the four (4) Audio Alarm Modes.

| Audio Alarm: None |

Press MENU A to advance to D9 - TEST NETWORK menu. Contact Data Aire factory on test procedures for the Network.

Press MENU A to advance to D10 - TEST RS-232 menu. Contact Data Aire factory on test procedures for the RS-232.

Press MENU A to advance to D11 - TEST WATCH DOG CIRCUIT menu. Press SELECT A and the following message will be displayed.

| Press SELECT to Force Watchdog Reset |

When SELECT A is pressed, the Watchdog Timer will automatically reset after 1.6 seconds and the processor will return to its normal operating mode.

WARNING: THE PANEL MUST NOT BE LEFT IN THE MANUAL DIAGNOSTIC MODE. WHEN IN THE MANUAL DIAGNOSTIC MODE, THE PANEL MUST BE SHUT OFF TO RETURN TO NORMAL OPERATING MODE.

(PRESS MENU A BUTTON TO ADVANCE TO MENU 21)
21 - HUMIDITY ANTICIPATION

In the “ON” mode, changes in the return air condition are calculated and adjustments are made to minimize Humidification and Dehumidification cycles.

HUMIDITY ANTICIPATION: ON (default OFF)

22 - COMRESSOR SHORT-CYCLE ALARM

The Compressor Short-Cycle Alarm will activate if the compressor has been energized ten (10) times in a one (1) hour period.

COMPRESSION SHORT-CYCLE ALARM: ON (default ON)

WARNING: The compressor life can be shortened by allowing frequent cycling. Ongoing Short-Cycle Alarm problems should be analyzed before selecting “OFF”.

23 - COMRESSOR SUPPLEMENTS TO E-SAVER

Allows selection of simultaneous Energy Saver and Compressor operation. Optional Discharge Air Sensor is required.

ENERGY SAVER NOT AVAILABLE
SUPPLEMENT E-SAVER WITH 1 COMPRESSOR
SUPPLEMENT E-SAVER WITH 2 COMPRESSORS
SUPPLEMENT ENERGY SAVER WITH NO COMPRESSORS (default)

24 - DEHUMIDIFICATION MODE

Allows selection for number of compressors to be used in dehumidification mode and temperature or dehumidification controlled priority.

NO REHEAT, DEHUMIDIFICATION NOT ALLOWED (message if reheat stages = 0)
DEHUMIDIFICATION MODE IS: OFF (message if dehumidification off, default ON)
1 COMPRESSOR & WITHIN REHEAT LIMITS (Temperature has priority)
2 COMPRESSORS & WITHIN REHEAT LIMITS (Dehumidification has priority)
1 COMPRESSOR & NO REHEAT LIMITS
2 COMPRESSORS & NO REHEAT LIMITS

25 - LOW DISCHARGE TEMP ALARM LIMIT

Compressor supplement is inhibited when the Discharge Air Temperature reaches the alarm limit.

SET AT xx°F (45-60, default 52)
DISABLE LOW DISCHARGE TEMP ALARM (COMPRESSOR SUPPLEMENT not allowed if disabled)
SENSOR NOT INSTALLED ON THIS UNIT (message if sensor not configured in menu 49)

26 - POWER PROBLEM OR RESTART MODE

WARNING: If set for MANUAL, the unit must be MANUALLY RESTARTED after a power outage.

27 - SYSTEM START DELAY

Provides programmable start delay to minimize total inrush current with multiple unit applications.

UNIT STARTS xx:xx AFTER POWER ON (5-600, default 00:05)
Provides selection of additional alarms to supplement the Standard Alarms.

CUSTOM MESSAGE ALARM
FAN MOTOR OVERLOAD: CHECK MOTOR AMPERAGE
HUMIDIFICATION INHIBITED
LOCAL ALARM #1: SEE TAG INSIDE DOOR
REHEAT AND HUMIDIFICATION INHIBITED
REHEAT INHIBITED
STANDBY PUMP ON: CHECK PRIMARY PUMP
UPS/ALTERNATE POWER ON: CHECK MAIN POWER

NOTE: Units with options which require optional alarm inputs are normally factory programmed with the correct selection. Do not select a message for an option that the unit does not have. Contact the Data Aire factory if options are unknown.

Provides programmable time delay before alarm activation.

ALARM DELAY: xxx SECONDS

Provides selection of additional alarms to supplement the Standard Alarms.

CUSTOM MESSAGE ALARM
FAN MOTOR OVERLOAD: CHECK MOTOR AMPERAGE
HUMIDIFICATION INHIBITED
LOCAL ALARM #2: SEE TAG INSIDE DOOR
REHEAT AND HUMIDIFICATION INHIBITED
REHEAT INHIBITED
STANDBY PUMP ON: CHECK PRIMARY PUMP
UPS/ALTERNATE POWER ON: CHECK MAIN POWER

Provides programmable time delay before alarm activation.

ALARM DELAY: xxx SECONDS

Provides selection of additional alarms to supplement the Standard Alarms.

CUSTOM MESSAGE ALARM
FAN MOTOR OVERLOAD: CHECK MOTOR AMPERAGE
HUMIDIFICATION INHIBITED
LOCAL ALARM #3: SEE TAG INSIDE DOOR
REHEAT AND HUMIDIFICATION INHIBITED
REHEAT INHIBITED
STANDBY PUMP ON: CHECK PRIMARY PUMP
UPS/ALTERNATE POWER ON: CHECK MAIN POWER

Provides programmable time delay before alarm activation.

ALARM DELAY: xxx SECONDS
Provides selection of additional alarms to supplement the Standard Alarms.

**CUSTOM MESSAGE ALARM**
- Fan Motor Overload: Check Motor Ampereage
- Humidification Inhibited
- Local Alarm #4: See Tag Inside Door
- Reheat and Humidification Inhibited
- Reheat Inhibited
- Standby Pump On: Check Primary Pump
- UPS/Alternate Power On: Check Main Power
- High Condensate Water Level

(PRESS MENU A TO ADVANCE TO MENU 35)

**35 - DELAY FOR OPTIONAL ALARM INPUT #4**

Provides programmable time delay before alarm activation.

**ALARM DELAY:** XXX SECONDS

(0-900, default 5)

(PRESS MENU A TO ADVANCE TO MENU 36)

**36 - REMOTE ALARM #1 SELECTION**

Provides individual selection for Remote Alarm #1.

- Compressor Short Cycle Alarm
- Custom Message Alarm, Opt Input #1
- Custom Message Alarm, Opt Input #2
- Custom Message Alarm, Opt Input #3
- Custom Message Alarm, Opt Input #4
- Dirty Filter Alarm
- Discharge Air Sensor Problem Alarm
- Fan Motor Overload Alarm
- Fire Stat Alarm
- High Humidity Alarm
- High Pressure/Internal Overload: Comp 1
- High Pressure/Internal Overload: Comp 2
- High Temperature Alarm
- Humidification Inhibited
- Humidifier Problem Alarm
- Humidity Sensor Problem Alarm
- Local Alarm #1
- Local Alarm #2
- Local Alarm #3
- Local Alarm #4
- Low Discharge Air Temperature Alarm
- Low Humidity Alarm
- Low Pressure Compressor 1 Alarm
- Low Pressure Compressor 2 Alarm
- Low Temperature Alarm
- Low Voltage Alarm
- Maintenance Required Alarm
- Manual Override Alarm
- No Airflow Alarm
- No Water Flow Alarm
- Power Problem, Restart Alarm
- Reheat and Humidification Inhibited
- Reheat Inhibited
- Smoke Detector Alarm
- Standby Pump On Alarm
- Temperature Sensor Problem Alarm
- UPS/Alternate Power On Alarm
- Water Detection Probe Alarm
- High Condensate Water Level

(PRESS MENU A TO ADVANCE TO MENU 37)

**37 - REMOTE ALARM #2 SELECTION**

Provides individual selection for Remote Alarm #2.

Expansion Card Required
- Compressor Short Cycle Alarm
- Custom Message Alarm, Opt Input #1
- Custom Message Alarm, Opt Input #2
- Custom Message Alarm, Opt Input #3
- Custom Message Alarm, Opt Input #4
- Dirty Filter Alarm

(If no expansion card is found for Remote Alarm 2 and 3)

(default ANY ALARM)
*DISCHARGE AIR SENSOR PROBLEM ALARM
*FAN MOTOR OVERLOAD ALARM
*FIRE STAT ALARM
*HIGH HUMIDITY ALARM
*HIGH PRESSURE/INTERNAL OVERLOAD: COMP 1
*HIGH PRESSURE/INTERNAL OVERLOAD: COMP 2
*HIGH TEMPERATURE ALARM
*HUMIDIFICATION INHIBITED
*HUMIDIFIER PROBLEM ALARM
*HUMIDITY SENSOR PROBLEM ALARM
*LOCAL ALARM #1
*LOCAL ALARM #2
*LOCAL ALARM #3
*LOCAL ALARM #4
*LOW DISCHARGE AIR TEMPERATURE ALARM
*LOW HUMIDITY ALARM
*LOW PRESSURE COMPRESSOR 1 ALARM
*LOW PRESSURE COMPRESSOR 2 ALARM
*LOW TEMPERATURE ALARM
*LOW VOLTAGE ALARM
*MAINTENANCE REQUIRED ALARM
*MANUAL OVERRIDE ALARM
*NO AIR FLOW ALARM
*NO WATER FLOW ALARM
*POWER PROBLEM, RESTART ALARM
*REHEAT AND HUMIDIFICATION INHIBITED
*REHEAT INHIBITED
*SmoKE DETECTOR ALARM
*STANDBY PUMP ON ALARM
*TEMPERATURE SENSOR PROBLEM ALARM
*UPS/ALTERNATE POWER ON ALARM
*WATER DETECTION PROBE ALARM
*HIGH CONDENSATE WATER LEVEL

(PRESS MENU A TO ADVANCE TO MENU 38)

38 - REMOTE ALARM #3 SELECTION

(If no expansion card is found for Remote ALARM 2 and 3)

EXPANSION CARD REQUIRED

*COMPRESSOR SHORT CYCLE ALARM
*CUSTOM MESSAGE ALARM, OPT INPUT #1
*CUSTOM MESSAGE ALARM, OPT INPUT #2
*CUSTOM MESSAGE ALARM, OPT INPUT #3
*CUSTOM MESSAGE ALARM, OPT INPUT #4
*DIRTY FILTER ALARM
*DISCHARGE AIR SENSOR PROBLEM ALARM
*FAN MOTOR OVERLOAD ALARM
*FIRE STAT ALARM
*HIGH HUMIDITY ALARM
*HIGH PRESSURE/INTERNAL OVERLOAD: COMP 1
*HIGH PRESSURE/INTERNAL OVERLOAD: COMP 2
*HIGH TEMPERATURE ALARM
*HUMIDIFICATION INHIBITED
*HUMIDIFIER PROBLEM ALARM
*HUMIDITY SENSOR PROBLEM ALARM
*LOCAL ALARM #1
*LOCAL ALARM #2
*LOCAL ALARM #3
*LOCAL ALARM #4
*LOW DISCHARGE AIR TEMPERATURE ALARM
*LOW HUMIDITY ALARM
*LOW PRESSURE COMPRESSOR 1 ALARM
*LOW PRESSURE COMPRESSOR 2 ALARM
*LOW TEMPERATURE ALARM
*LOW VOLTAGE ALARM
*MAINTENANCE REQUIRED ALARM
*MANUAL OVERRIDE ALARM
*NO AIRFLOW ALARM
*NO WATER FLOW ALARM
*POWER PROBLEM, RESTART ALARM
*REHEAT AND HUMIDIFICATION INHIBITED
*REHEAT INHIBITED
*SmoKE DETECTOR ALARM
*STANDBY PUMP ON ALARM
*TEMPERATURE SENSOR PROBLEM ALARM
*UPS/ALTERNATE POWER ON ALARM
*WATER DETECTION PROBE ALARM
*HIGH CONDENSATE WATER LEVEL

(PRESS MENU A TO ADVANCE TO MENU 39)
39 - PERSON TO CONTACT ON ALARM

(PRESS A SELECT BUTTON TO DISPLAY CURRENT ALARM MESSAGE. TO CHANGE MESSAGE, PRESS SELECT ▲ TO ENTER DESIRED MESSAGE)

CONTACT MESSAGE NOT USED (default CONTACT MESSAGE NOT USED)
ALARM: CONTACT DATA PROCESSING MANAGER
ALARM: CONTACT MAINTENANCE ENGINEER
ALARM: CONTACT SERVICE COMPANY
ALARM: CONTACT (25 SPACE CUSTOM MESSAGE)

(PRESS MENU ▲ TO ADVANCE TO MENU 40)

40 - DEFINE PASSWORD

(PRESS A SELECT BUTTON TO DISPLAY CURRENT PASSWORD. TO CHANGE PASSWORD, PRESS SELECT ▲ OR SELECT ▼ TO ENTER DESIRED PASSWORD NUMBER)

CHANGE PASSWORD TO: xx (default 00)

(PRESS MENU ▲ TO ADVANCE TO MENU 41)

41 - HUMIDIFIER AUTOFLUSH TIMER

(PRESS A SELECT BUTTON TO DISPLAY CURRENT SETTING. TO CHANGE SETTING, PRESS SELECT ▲ OR SELECT ▼ TO ENTER DESIRED SETTING)

EXPANSION CARD REQUIRED
HUMIDIFIER AUTOFLUSH TIMER NOT USED (message if no expansion card found)
FLUSH HUMIDIFIER EVERY 06 HOURS
12 HOURS
24 HOURS
(etc.)
96 HOURS

(PRESS MENU ▲ TO ADVANCE TO MENU 42)

42 - FIRE STAT TEMPERATURE ALARM LIMIT

(PRESS A SELECT BUTTON TO DISPLAY CURRENT SETTING. TO CHANGE SETTING, PRESS SELECT ▲ OR SELECT ▼ TO ENTER DESIRED SETTING)

UNIT SHUTDOWN & ALARM AT: xxx F (100-150, default 100)

(PRESS MENU ▲ TO ADVANCE TO MENU 43)

43 - SCHEDULED NORMAL MAINTENANCE

(PRESS A SELECT BUTTON TO DISPLAY CURRENT SETTING. TO CHANGE SETTING, PRESS SELECT ▲ OR SELECT ▼ TO ENTER DESIRED SETTING OR TURN OFF ALARM)

Clear Alarm: To silence and reset Maintenance Due alarm, press “SILENCE” button when message is displayed on LCD.
MAINTENANCE DUE MESSAGE EVERY: xxxx HRS
MAINTENANCE DUE MESSAGE: OFF (default OFF)

(PRESS MENU ▲ TO ADVANCE TO MENU 44)

44 - TEMPERATURE SCALE

(PRESS A SELECT BUTTON TO DISPLAY THE CURRENT MODE. TO CHANGE MODE, PRESS SELECT ▲ OR SELECT ▼ TO ENTER DESIRED MODE)

DISPLAY TEMPERATURE IN: FAHRENHEIT (default FAHRENHEIT)

(PRESS MENU ▲ TO ADVANCE TO MENU 45)

45 - CONTROL LOGIC

(PRESS A SELECT BUTTON TO DISPLAY THE CURRENT MODE. TO CHANGE MODE, PRESS SELECT ▲ OR SELECT ▼ TO ENTER DESIRED MODE)

Setpoint Deviation is the standard Control Logic. If an Optional Logic is utilized, special programming instructions will be sent with the unit.

REGULATION ALGORITHM: SETPOINT DEVIATION (default SETPOINT DEVIATION)
SMART LOGIC (optional software required)
PID (optional software required)

(PRESS MENU ▲ TO ADVANCE TO MENU 46)

46 - UNIT & NETWORK ID

(PRESS A SELECT BUTTON TO DISPLAY THE ID NUMBER. TO CHANGE ID NUMBER, PRESS SELECT ▲ OR SELECT ▼ TO ENTER DESIRED NUMBER)

UNIT IDENTIFICATION NUMBER: xxx (001-260, default 001)

Unit will not respond to a Network unless a separate ID# is entered for each unit.

(PRESS MENU ▲ TO ADVANCE TO MENU 47)
CALIBRATE TEMPERATURE SENSOR

(PRESS A SELECT BUTTON TO DISPLAY CURRENT SETTING. TO CHANGE SETTING, PRESS SELECT ▲ OR SELECT ▼ TO ENTER DESIRED SETTING)

The Temperature Sensor is CALIBRATED and the offset is entered at the factory. Each sensor is tagged with the calibration offset, this should be verified with the setting in this menu.

\[ \text{RETURN TEMPERATURE } \pm \text{xxx.x} = \text{xxx.x} \text{ °F} \]

(PRESS MENU ▲ TO ADVANCE TO MENU 48)

CALIBRATE HUMIDITY SENSOR

(PRESS A SELECT BUTTON TO DISPLAY CURRENT SETTING. TO CHANGE SETTING, PRESS SELECT ▲ OR SELECT ▼ TO ENTER DESIRED SETTING)

The Humidity Sensor is CALIBRATED and the offset is entered at the factory. Each sensor is tagged with the calibration offset, this should be verified with the setting in this menu.

\[ \text{HUMIDITY } \pm \text{xx.x} = \text{xx.x} \text{ %} \]

(PRESS MENU ▲ TO ADVANCE TO MENU 49)

CALIBRATE DISCHARGE AIR TEMP SENSOR

(PRESS A SELECT BUTTON TO DISPLAY CURRENT SETTING. TO CHANGE SETTING, PRESS SELECT ▲ OR SELECT ▼ TO ENTER DESIRED SETTING)

The Discharge Air Sensor is CALIBRATED and the offset is entered at the factory. Each sensor is tagged with the calibration offset, this should be verified with the setting in this menu.

\[ \text{SENSOR NOT INSTALLED} \]

\[ \text{DISCHARGE TEMPERATURE } \pm \text{xxx.x} = \text{xxx.x} \text{ °F} \]  

\[ \text{COLD H20 TEMP } \pm \text{xxx.x} = \text{xxx.x} \text{ °F} \]

(message if sensor is not installed)

(requires an optional sensor)

(requires an optional sensor)

(PRESS MENU ▲ TO ADVANCE TO MENU 50)

THE FOLLOWING MENUS ARE SET AND LOCKED AT THE FACTORY AND MAY BE VIEWED ONLY, UNTIL THEY ARE UNLOCKED. FOR LOCKED MENU ACCESS, PLEASE SEE THE PROCEDURE BELOW.

PROCEDURE TO UNLOCK MENUS 50-63

MENUS 50-63 ARE SET AT THE FACTORY BASED ON THE UNIT COMPONENTS AND OPTIONS ORDERED. UNDER NORMAL CIRCUMSTANCES THESE MENUS SHOULD NOT HAVE TO BE CHANGED. THEY DO NOT HAVE TO BE UNLOCKED TO READ THE SETTINGS. IF THEY NEED TO BE CHANGED, THE FOLLOWING IS A STEP-BY-STEP PROCEDURE TO UNLOCK THE MENUS.

1. PRESS MENU ▲ BUTTON TO GET TO MENU 6, STOP HERE. DO NOT ENTER THE PASSWORD.
2. PRESS AND HOLD MENU ▲ BUTTON, THEN PRESS AND HOLD MENU ▼ BUTTON. RELEASE BOTH BUTTONS AT THE SAME TIME. THE DISPLAY SHOULD REMAIN AT MENU 6.
3. PRESS THE MENU ▲ BUTTON AGAIN. IF YOU HAVE FOLLOWED THE ABOVE PROCEDURES CORRECTLY, YOU WILL HEAR THREE (3) BEEPS FROM THE CONTROL PANEL, AND THE PANEL WILL SCROLL TO MENU 7. IF YOU DO NOT HEAR THE THREE (3) BEEPS, PRESS THE “EXIT” BUTTON, THEN REPEAT STEPS 1 THRU 3.
4. YOU ARE NOW ABLE TO ENTER AND CHANGE THE SETTINGS ON MENUS 50-63.

TO RELOCK THE MENUS AND SAVE THE NEW SETTINGS, SIMPLY PRESS THE “EXIT” BUTTON ONE TIME. THE NEW SETTINGS WILL BE SAVED AND THE PANEL WILL GO BACK TO ITS NORMAL OPERATING MODE.

COMPRESSOR(S)

(PRESS A SELECT BUTTON TO DISPLAY THE CURRENT SELECTION. TO CHANGE SELECTION, PRESS SELECT ▲ OR SELECT ▼ TO ENTER DESIRED SELECTION)

NONE (default PRIMARY/PRIMARY)

PRIMARY

PRIMARY/SECONDARY

PRIMARY/PRIMARY

PRIMARY/SECONDARY PRIMARY/SECONDARY

FOUR TANDEM COMPRESSORS

(requires expansion card)

(requires expansion card)

(PRESS MENU ▲ TO ADVANCE TO MENU 51)

REHEAT StAGES

(PRESS A SELECT BUTTON TO DISPLAY THE CURRENT SELECTION. TO CHANGE SELECTION, PRESS SELECT ▲ OR SELECT ▼ TO ENTER DESIRED SELECTION)

REHEAT STAGES: NONE (default 3)

1

2

3 (OR VALVE ON P6-12, P6-13)

HOT WATER

(PRESS MENU ▲ TO ADVANCE TO MENU 52)
52 - HUMIDIFIER

(PRESS A SELECT BUTTON TO DISPLAY THE CURRENT SELECTION. TO CHANGE SELECTION, PRESS SELECT ▲ OR SELECT ▼ TO ENTER DESIRED SELECTION)

HUMIDIFIER: NONE (default COMPUTER, NON-MODULATING)
COMPUTER, MODULATING
COMFORT, NON-MODULATING
COMFORT, MODULATING (requires EXPANSION MODULE)

(PRESS MENU ▲ TO ADVANCE TO MENU 53)

53 - WATER VALVE MODE

(PRESS A SELECT BUTTON TO DISPLAY CURRENT SELECTION. TO CHANGE SELECTION, PRESS SELECT ▲ OR SELECT ▼ TO ENTER DESIRED SELECTION)

WATER VALVE: NONE (default)
CHILLED WATER COOLING
ENERGY SAVER COOLING
AUX CHILLED WATER COOLING

(PRESS MENU ▲ TO ADVANCE TO MENU 54)

54 - WATER VALVE VOLTAGE CONTROL RANGE

(PRESS A SELECT BUTTON TO DISPLAY CURRENT SELECTION. TO CHANGE SELECTION, PRESS SELECT ▲ OR SELECT ▼ TO ENTER DESIRED SELECTION)

Note: There is no reason to change the selection here if the unit does not have a Chilled Water Valve.

WATER VALVE CONTROL RANGE: 0-10 DC (default 0-10)
4-7 DC
6-9 DC
7-10 DC

(PRESS MENU ▲ TO ADVANCE TO MENU 55)

55 - REVERSE ACTING WATER VALVE

(PRESS A SELECT BUTTON TO DISPLAY THE CURRENT MODE. TO CHANGE MODE, PRESS SELECT ▲ OR SELECT ▼ TO DESIRED MODE)

REVERSE ACTING WATER VALVE: NO (default)
YES

(PRESS MENU ▲ TO ADVANCE TO MENU 56)

56 - NETWORK PROTOCOL

(PRESS A SELECT BUTTON TO DISPLAY THE CURRENT MODE. TO CHANGE MODE, PRESS SELECT ▲ OR SELECT ▼ TO DESIRED MODE)

DATA AIRE POLL AND RESPONSE (standard)
JOHNSON CONTROL METASYS N2 (optional)

(PRESS MENU ▲ TO ADVANCE TO MENU 57)

MENUS 57 THRU 62 WILL NOT APPEAR UNLESS OPTIONAL SOFTWARE FOR PID CONTROL LOGIC IS INSTALLED. IF NOT INSTALLED, THE PANEL WILL SCROLL TO MENU 63.

The following menu requires an analog module to be connected to the DAP-II panel.

57 - ANALOG MODULE SENSOR SETUPS

(PRESS A SELECT BUTTON TO DISPLAY SET-UP)

AM1 - SELECT SENSOR 1 NAME

(PRESS SELECT ▲ TO SHOW THE CURRENT SETTING. TO CHANGE SETTING, PRESS SELECT ▲ OR SELECT ▼ TO DESIRED SETTING)

SENSOR NOT INSTALLED (default)
CONDENSER H20 RETURN TEMP
CHILLED WATER SUPPLY TEMP
CHILLED WATER RETURN TEMP
CHILLED WATER FLOW
SUPPLY AIR TEMPERATURE
RETURN AIR TEMPERATURE
CONDENSER WATER FLOW
ZONE AIR TEMPERATURE
ZONE AIR HUMIDITY
OUTSIDE AIR TEMPERATURE
OUTSIDE AIR HUMIDITY
DISCHARGE PRESSURE
SUCTION PRESSURE
DIFFERENTIAL PRESSURE
PRESSURE
FLOW

(PRESS MENU ▲ TO GO TO NEXT MENU.)
AM2 - SPECIFY SENSOR 1 UNITS OF MEASURE
(PRESS SELECT ▲ TO SHOW CURRENT SETTING. TO CHANGE SETTING, PRESS SELECT ▲ OR SELECT ▼)

VAC (AC VOLTS) (default AC VOLTS)
AMPS (AMPERES)
Hz (HERTZ)
KW (KILOWATTS)
°F (FAHRENHEIT)
C (CENTIGRADE)
GPM (GALLON PER MINUTE)
%RH (PERCENT RELATIVE HUMIDITY)
PSIG (POUNDS PER SQUARE INCH)
H2O (INCHES OF WATER)

(PRESS MENU ▲ TO GO TO NEXT MENU)

AM3 - SPECIFY SENSOR 1 SIGNAL RANGE
(PRESS SELECT ▲ TO SHOW CURRENT SETTING. TO CHANGE SETTING, PRESS SELECT ▲ OR SELECT ▼)

0-10 VDC (default 0-10 VDC)
0-5 VDC
4-20 mA

(PRESS MENU ▲ TO GO TO NEXT MENU)

AM4 - SPECIFY SENSOR 1 MINIMUM VALUE
(PRESS SELECT ▲ TO SHOW CURRENT SETTING. TO CHANGE SETTING, PRESS SELECT ▲ OR SELECT ▼)

0VDC SIGNAL = 0.0 VDC (0-900)

(PRESS MENU ▲ TO GO TO NEXT MENU)

AM5 - SPECIFY SENSOR 1 MAXIMUM VALUE
(PRESS SELECT ▲ TO SHOW CURRENT SETTING. TO CHANGE SETTING, PRESS SELECT ▲ OR SELECT ▼)

10VDC SIGNAL = 0.0 VDC (0-900)

(PRESS MENU ▲ TO GO TO NEXT MENU)

AM6 - SET SENSOR 1 CALIBRATION
(PRESS SELECT ▲ TO SHOW CURRENT SETTING. TO CHANGE SETTING, PRESS SELECT ▲ OR SELECT ▼)

XX+0.0 = 0.0 VAC

(PRESS MENU ▲ TO GO TO NEXT MENU)

AM7 - SELECT SENSOR 2 NAME
(PRESS SELECT ▲ TO SHOW CURRENT SETTING. TO CHANGE SETTING, PRESS SELECT ▲ OR SELECT ▼)

SENSOR NOT INSTALLED (default SENSOR NOT INSTALLED)
SEE THE MENU AM1 FOR SENSOR LIST

(PRESS MENU ▲ TO GO TO NEXT MENU)

AM8 - SPECIFY SENSOR 2 UNITS OF MEASURE
(PRESS SELECT ▲ TO SHOW CURRENT SETTING. TO CHANGE SETTING, PRESS SELECT ▲ OR SELECT ▼)

VAC (AC VOLTS) (default AC VOLTS)
SEE THE MENU AM2 FOR SENSOR LIST

(PRESS MENU ▲ TO GO TO NEXT MENU)

AM9 - SPECIFY SENSOR SIGNAL RANGE
(PRESS SELECT ▲ TO SHOW CURRENT SETTING. TO CHANGE SETTING, PRESS SELECT ▲ OR SELECT ▼)

0-10 VDC (default 0-10 VDC)
0-5 VDC
4-20 mA

(PRESS MENU ▲ TO GO TO NEXT MENU)

AM10 - SPECIFY SENSOR 2 MINIMUM VALUE
(PRESS SELECT ▲ TO SHOW CURRENT SETTING. TO CHANGE SETTING, PRESS SELECT ▲ OR SELECT ▼)

0VDC SIGNAL = 0.0 VDC (0-900)

(PRESS MENU ▲ TO GO TO NEXT MENU)

AM11 - SPECIFY SENSOR 2 MAXIMUM VALUE
(PRESS SELECT ▲ TO SHOW CURRENT SETTING. TO CHANGE SETTING, PRESS SELECT ▲ OR SELECT ▼)

10VDC SIGNAL = 0.0 VDC (0-900)

(PRESS MENU ▲ TO GO TO NEXT MENU)

AM12 - SET SENSOR 2 CALIBRATION
(PRESS SELECT ▲ TO SHOW CURRENT SETTING. TO CHANGE SETTING, PRESS SELECT ▲ OR SELECT ▼)

XX+0.0 = 0.0 VAC

(PRESS MENU ▲ TO GO TO NEXT MENU)

AM13 - SET WATER DETECT THRESHOLD
(PRESS SELECT ▲ TO SHOW CURRENT LIMIT. TO CHANGE LIMIT, PRESS SELECT ▲ OR SELECT ▼)

XXXXK OHMS LIMIT (1-50,000K) (default 1000K OHMS)

(PRESS MENU ▲ TO ADVANCE TO MENU 1 OR PRESS "EXIT" TO GO BACK TO NORMAL OPERATING MODE.)
DATA ALARM PROCESSOR II
CONTROL LOGIC

PROCESSOR SELF-TEST
When the DAP-II is turned on, it performs a Diagnostic Self-Test of the following items:

- EPROM: PASS or FAIL
- STATIC RAM: PASS or FAIL
- EEPROM: PASS or FAIL
- RAM SIGNATURE: PASS or FAIL
- ANALOG: PASS or FAIL
- DC UNREGULATED: 32 VDC

- 15 VDC REGULATED: 15 VDC
- BATTERY VOLTAGE: 3.0 or FAIL
- RETURN TEMP SENSOR: PASS or FAIL
- DISCHARGE TEMP SENSOR: PASS or FAIL
- HUMIDITY SENSOR: PASS or FAIL
- BUTTONS: PASS or FAIL

If any of the tests display "FAIL", see the troubleshooting guide for recommended corrective procedures. The RAM SIGNATURE test often displays "FAIL" on the initial start-up because the RAM does not have any stored data. Simply press the "SELECT UP BUTTON" to bypass the "FAIL" message. Once the processor is on line and operating, the RAM will collect data and the test should pass on future restarts.

SYSTEM START DELAY
After the Diagnostic Self-Test is complete, the Timed Start Delay will be displayed and will start counting down from the programmed delay. The default Timed Start Delay programmed is five (5) seconds.

BLOWER
1. The blower will start upon completion of the Timed Start Delay and is programmed and wired to run continuously during unit operation.
2. The Cooling, Reheat, Humidifier and Dehumidification functions are inhibited for one (1) minute after the blower starts. This allows the Temperature and Humidity Sensors time to adjust.

COMPRESSOR COOLING
1. There is a five (5) minute delay between start to start of the same primary stage. The delay will be increased to six (6) minutes, for one (1) hour, following the detection of a short-cycle condition, even if the Short-Cycle Alarm is disabled in Menu 22 (Compressor Short Cycle Alarm).
2. There is a two (2) minute delay between stop to start of the same primary stage.
3. There is a one (1) minute delay between stop to start of the same secondary unloader stage or stop to start of a second secondary unloader stage.
4. Compressor staging sequence at each adjustment period, Menu 15 (Mode and Stage Response Time)
   Compressor "ON" Sequence (Rising Temperature)
   • Cool 1 ON at Temperature Setpoint + Temperature Deadband
   • Cool 2 ON at Temperature Setpoint + Temperature Deadband + .3°F
   • Cool 3 ON at Temperature Setpoint + Temperature Deadband + .6°F
   • Cool 4 ON at Temperature Setpoint + Temperature Deadband + .9°F

   Compressor "OFF" Sequence (Falling Temperature)
   • Cooling 4 OFF at Temperature Setpoint + .9°F
   • Cooling 3 OFF at Temperature Setpoint + .6°F
   • Cooling 2 OFF at Temperature Setpoint + .3°F
   • Cooling 1 OFF at Temperature Setpoint

   * This applies to four (4) stage control for semi-hermetic compressors with compressor unloading valves.
5. If the temperature drops below the setpoint in an adjustment period, all compressors turn OFF at once.

CHILLED WATER COOLING
Chilled Water Valve "OPENING" Sequence (Temperature Rising)
1. The chilled water valve proportionally opens 10% for each 0.1°F above the Temperature Setpoint + Temperature Deadband.
2. The chilled water valve responds to a change of the return air temperature after each adjustment period. When a change is made to the setpoint, the chilled water valve will delay its response for five (5) minutes, then will respond after each adjustment period.
3. If the current temperature is higher than at the last adjustment period, the following sequence is used to determine the new valve position.
   Current Temperature = Setpoint + Deadband + 0.0°F = 0% Position
   Current Temperature = Setpoint + Deadband + 0.1°F = 10% Position
   Current Temperature = Setpoint + Deadband + 0.2°F = 20% Position
Chilled Water Valve "CLOSING" Sequence (Temperature Falling)

1. The chilled water valve proportionally closes 10% for each 0.1°F below the temperature setpoint + 1.0°F.

2. The chilled water valve responds to a change of the return air temperature after each adjustment period. When a change is made to the setpoint, the chilled water valve will delay its response for five (5) minutes, then will respond after each adjustment period.

3. If the current temperature is lower than at the last adjustment period, the following sequence is used to determine the new valve position.

\[
\text{Current Temperature} = \text{Setpoint} + \text{Deadband} + 0.1^\circ\text{F} = 30\% \text{ Position}
\]
\[
\text{Current Temperature} = \text{Setpoint} + \text{Deadband} + 0.2^\circ\text{F} = 40\% \text{ Position}
\]
\[
\text{Current Temperature} = \text{Setpoint} + \text{Deadband} + 0.3^\circ\text{F} = 50\% \text{ Position}
\]
\[
\text{Current Temperature} = \text{Setpoint} + \text{Deadband} + 0.4^\circ\text{F} = 60\% \text{ Position}
\]
\[
\text{Current Temperature} = \text{Setpoint} + \text{Deadband} + 0.5^\circ\text{F} = 70\% \text{ Position}
\]
\[
\text{Current Temperature} = \text{Setpoint} + \text{Deadband} + 0.6^\circ\text{F} = 80\% \text{ Position}
\]
\[
\text{Current Temperature} = \text{Setpoint} + \text{Deadband} + 0.7^\circ\text{F} = 90\% \text{ Position}
\]
\[
\text{Current Temperature} = \text{Setpoint} + \text{Deadband} + 0.8^\circ\text{F} = 100\% \text{ Position}
\]

4. If the temperature is consistently rising, the valve will open accordingly at each adjustment period. Likewise, if the temperature is consistently falling, the valve will close accordingly at each adjustment period. However, if the temperature changes directions, then it must change the amount of the deadband before the valve will be repositioned. The temperature can slowly drift back and forth within a deadband window at any point in the adjustment period without a valve position change.

ENERGY SAVER & AUXILIARY CHILLED WATER COOLING

1. Energy Saver/Auxiliary Chilled Water Cooling will be available whenever the incoming water supply is below the setpoint of the Water Sensing Changeover Thermostat.

2. The Energy Saver/Auxiliary Chilled Water mode will operate only in a two (2) degree range. The range is between the return air setpoint plus deadband and two (2) degrees above this. If the temperature rises above this range, Energy Saver/Auxiliary Chilled Water Cooling will be inhibited for one (1) hour and DX cooling only will be available. After one (1) hour, it will try Energy Saver/Auxiliary Chilled Cooling again.

3. The chilled water valve proportionally opens 10% for each 0.1°F above the Temperature Setpoint + Temperature Deadband.

4. The chilled water valve responds to a change of the return air temperature after each adjustment period. When a change is made to the setpoint, the chilled water valve will delay its response for five (5) minutes, then will respond after each adjustment period.

5. If the temperature is consistently rising, then the valve will be opened more at each adjustment period. Likewise, if the temperature is consistently falling, then the valve will be closed more at each adjustment period. However, if the temperature movement changes directions, then it must change the amount of the deadband before the valve will be repositioned. The temperature can be slowly drifting back and forth within a deadband window at any point in the adjustment period and no valve changes will be made.

6. If the current temperature is higher than at the last adjustment period, the following sequence is used to determine the new valve position.

\[
\text{Current Temperature} = \text{Setpoint} + \text{Deadband} + 0.0^\circ\text{F} = 0\% \text{ Position}
\]
\[
\text{Current Temperature} = \text{Setpoint} + \text{Deadband} + 0.1^\circ\text{F} = 10\% \text{ Position}
\]
\[
\text{Current Temperature} = \text{Setpoint} + \text{Deadband} + 0.2^\circ\text{F} = 20\% \text{ Position}
\]
\[
\text{Current Temperature} = \text{Setpoint} + \text{Deadband} + 0.3^\circ\text{F} = 30\% \text{ Position}
\]
\[
\text{Current Temperature} = \text{Setpoint} + \text{Deadband} + 0.4^\circ\text{F} = 40\% \text{ Position}
\]
\[
\text{Current Temperature} = \text{Setpoint} + \text{Deadband} + 0.5^\circ\text{F} = 50\% \text{ Position}
\]
\[
\text{Current Temperature} = \text{Setpoint} + \text{Deadband} + 0.6^\circ\text{F} = 60\% \text{ Position}
\]
\[
\text{Current Temperature} = \text{Setpoint} + \text{Deadband} + 0.7^\circ\text{F} = 70\% \text{ Position}
\]
\[
\text{Current Temperature} = \text{Setpoint} + \text{Deadband} + 0.8^\circ\text{F} = 80\% \text{ Position}
\]
\[
\text{Current Temperature} = \text{Setpoint} + \text{Deadband} + 0.9^\circ\text{F} = 90\% \text{ Position}
\]
\[
\text{Current Temperature} = \text{Setpoint} + \text{Deadband} + 1.0^\circ\text{F} = 100\% \text{ Position}
\]

7. The chilled water valve proportionally closes 10% for each 0.1°F below the temperature setpoint + 1.0°F.
8. If the current temperature is higher than at the last adjustment period, the following sequence is used to determine the new valve position.

   Current Temperature = Setpoint + 1.0°F = 100% Position
   Current Temperature = Setpoint + 0.9°F = 90% Position
   Current Temperature = Setpoint + 0.8°F = 80% Position
   Current Temperature = Setpoint + 0.7°F = 70% Position
   Current Temperature = Setpoint + 0.6°F = 60% Position
   Current Temperature = Setpoint + 0.5°F = 50% Position
   Current Temperature = Setpoint + 0.4°F = 40% Position
   Current Temperature = Setpoint + 0.3°F = 30% Position
   Current Temperature = Setpoint + 0.2°F = 20% Position
   Current Temperature = Setpoint + 0.1°F = 10% Position
   Current Temperature = Setpoint + 0.0°F = 0% Position

ENERGY SAVER & AUXILIARY CHILLED WATER COOLING WITH COMPRESSOR SUPPLEMENT

1. Energy Saver/Auxiliary Chilled Water Cooling can operate simultaneously with compressor cooling. The optional Discharge Air Sensor is required.
2. The Energy Saver/Auxiliary Chilled Water Cooling logic will be the same and compressor rules for short-cycle time will not be violated.
3. The following is the compressor staging sequence at each adjustment period:
   Cool 1 ON at Temperature Setpoint + Temperature Deadband + 1.3°F and Valve 100% Open
   Cool 2 ON at Temperature Setpoint + Temperature Deadband + 1.6°F and Valve 100% Open
   Cool 3 ON at Temperature Setpoint + Temperature Deadband + 1.9°F and Valve 100% Open
   Cool 4 ON at Temperature Setpoint + Temperature Deadband + 2.2°F and Valve 100% Open
   Cool 4 OFF at Temperature Setpoint + 2.2°F and Valve 100% Open
   Cool 3 OFF at Temperature Setpoint + 1.9°F and Valve 100% Open
   Cool 2 OFF at Temperature Setpoint + 1.6°F and Valve 100% Open
   Cool 1 OFF at Temperature Setpoint + 1.3°F and Valve 100% Until Next Adjustment Period
   This applies to four stage control with compressor unloading values.

REHEAT

1. There is a one minute delay between the stop of any stage to the start of any stage.
2. There is a one minute delay from start to start of different stages. Reheat stages rotate every 100 hours of their runtime.
3. The Reheat staging at each adjustment period is as follows:
   Reheat 1 ON at Temperature Setpoint - Temperature Deadband
   Reheat 2 ON at Temperature Setpoint - Temperature Deadband - 0.3°F
   Reheat 3 ON at Temperature Setpoint - Temperature Deadband - 0.6°F
   Reheat 3 OFF at Temperature Setpoint - 0.6°F
   Reheat 2 OFF at Temperature Setpoint - 0.3°F
   Reheat 1 OFF at Temperature Setpoint

4. The above staging is for the standard 3 stage electric Reheat. For other types of single stage Reheat, Hot Water or Hot Gas, the sequence is as follows:
   Reheat is ON at Temperature Setpoint - Temperature Deadband
   Reheat is OFF at Temperature Setpoint

5. Reheat will be overridden by humidification when Menu 52 (Humidifier) is set for "Computer, Non-Modulating" or "Computer, Modulating".

HUMIDIFICATION

1. Humidification will inhibit the Reheat if Menu 52 (Humidifier), is configured for "Computer, Non-Modulating" or "Computer, Modulating". Reheat is allowed during Humidification if Menu 52 (Humidifier), is configured for "Comfort, Non-Modulating" or "Comfort, Modulating".
2. There is a one (1) minute delay between Stop to Start of Humidification.
3. There is a five (5) minute delay between Stop of Dehumidification and Start of Humidification.
4. The Humidification staging sequence at each adjustment period for ON/OFF of Non-Modulating Humidifiers is as follows:
   Humidifier ON at Humidity Setpoint - Humidity Deadband
   Humidifier OFF at Humidity Setpoint - 1% Deadband

5. The Humidification staging sequence for a Modulating Humidifier is as follows:
   Valve is OPENED at Humidity Setpoint - 1.0%
   Valve is CLOSED at Humidity Setpoint - 0.5%

6. When the Humidifier valve is opened, its position is set to follow a linear ramp, which goes from 25% open when the Humidity is at Setpoint minus 0.5% to 100% open at Setpoint minus Humidity Deadband.
DEHUMIDIFICATION

1. Menu 24 (DEHUMIDIFICATION MODE), is used to select one (1) or two (2) compressors for Dehumidification and with or without Reheat limits.

2. If Dehumidification “WITHIN REHEAT LIMITS” is selected, it will inhibit dehumidification if the return air temperature drops to Temperature Setpoint minus Temperature Deadband minus 0.9°F. Dehumidification will be inhibited until the return air temperature rises to the Temperature Setpoint. Compressor Short-Cycle Time Delay will not be violated.

3. If Dehumidification “NO REHEAT LIMITS” is selected, Dehumidification will remain ON until the Humidity Setpoint is reached. In this mode, dehumidification has priority and overcooling is disregarded. The Reheat sequence will remain the same.

4. If Menu 24 is set for two (2) compressors, with or without Reheat Limits, only one (1) compressor will be allowed if Reheat is required.

5. There is a one (1) minute delay between Stop to Start of Dehumidification. Compressor Short-Cycle Time Delay will not be violated.

6. There is a five (5) minute delay between Dehumidification and Humidification.

7. The Compressor staging sequence for Dehumidification is at each adjustment period and is as follows:

   - Cool 1 ON at Humidity Setpoint + Humidity Deadband
   - Cool 2 ON at Humidity Setpoint + Humidity Deadband + 1%
   - Cool 3 ON at Humidity Setpoint + Humidity Deadband + 2%
   - Cool 4 ON at Humidity Setpoint + Humidity Deadband + 3%
   - Cool 4 OFF at Humidity Setpoint + 3%
   - Cool 3 OFF at Humidity Setpoint + 2%
   - Cool 2 OFF at Humidity Setpoint + 1%
   - Cool 1 OFF at Humidity Setpoint

   This applies to four (4) stage control for semi-hermetic compressors with compressor unloading valves.

8. Sequence for Dehumidification with Energy Saver/Auxiliary Chilled Water Cooling is as follows:

   - Valve is OPENED to 100% at Humidity Setpoint + Humidity Deadband
   - Valve is CLOSED at Humidity Setpoint

DEHUMIDIFICATION FOR CHILLED WATER

1. All of the standard Dehumidification rules for Dehumidification with Compressors applies to Chilled Water.

2. The chilled water valve responds to a change of the return air relative humidity after each adjustment period. When a change is made to the setpoint, the chilled water valve will delay its response for five (5) minutes, then will respond after each adjustment period.

3. The Dehumidification Chilled Water sequence is as follows:

   - Valve is OPENED to 100% at Humidity Setpoint + Humidity Deadband
   - Valve is CLOSED at Humidity Setpoint

AUTOMATIC FLUSH CYCLE LOGIC FOR CHILLED WATER OR HOT WATER COILS

If 100 hours elapses where the Chilled Water or Hot Water valve has not opened for normal Cooling or Heating, the valve will automatically open for 30 seconds to flush the coil. There is no special message during this flush cycle.

HUMIDIFIER AUTOFLOW TIMER CONTROL

1. The optional Expansion Module is required and applies only for Infrared or Immersion type Humidifiers.

2. The Autoflush time rate is programmed in Menu 41 (HUMIDIFIER AUTOFLOW TIMER).

3. The Autoflush Cycle takes 11 minutes. The sequence is as follows:
   a) For the first 5 minutes, the drain solenoid is OPENED and humidification is inhibited.
   (The message “HUMIDIFICATION INHIBITED BY AUTOFLUSH” will be displayed and humidity related alarms are disabled)
   b) 5 - 6 minutes the solenoid is closed and the pan starts to fill.
   c) 6 - 11 minutes the humidification is enabled and the pan continues to fill. (The inhibit message is discontinued)
   d) After 11 minutes the humidity alarms are enabled.

MODE AND STAGE RESPONSE TIME (Adjustment Period)

This is the interstate time delay, system reaction time and is programmed in Menu 15 (MODE AND STAGE RESPONSE TIME). The default setting is one (1) minute and the maximum setting is five (5) minutes. The test mode setting is only for service and should not be left in this setting. The time delay is not based on a real time clock, therefore, one (1) minute may not exactly be a 60 second duration.
HUMIDITY ANTICIPATION
1. Turned ON or OFF in Menu 21 (HUMIDITY ANTICIPATION).
2. When set to ON, the Humidity Setpoint is automatically modified as follows to reduce excessive Humidifying and Dehumidifying.

The Humidity Setpoint is decreased by 1% for every 1.5°F the return air temperature rises above the Temperature Setpoint. The maximum amount the Humidity Setpoint may be decreased is 10%, which is equal to 15°F above the return air Temperature Setpoint.

The Humidity Setpoint is increased by 1% for every 1.5°F the return air temperature falls below the Temperature Setpoint. The maximum amount the Humidity Setpoint may be increased is 10%, which is equal to 15°F above the return air Temperature Setpoint.

MANUAL OVERRIDE
When any Manual Override function is used, the automatic functions of the processor are disabled and all desired functions must be changed to Manual Override. The message “MANUAL OVERRIDE” will be displayed on the LCD.

TEMPERATURE AND HUMIDITY SENSOR PROBLEM
1. A Temperature Sensor problem will activate all of the cooling stages if the unit is operating at the time of the problem. If a Temperature Sensor problem is detected at the Start-Up Self-Test, the Self-Test will stop at the Temperature Sensor test until the “Select up” button is pressed. To bypass the test, set Menu 19 (AUTOMATIC SELF-TEST ACKNOWLEDGE) to “OFF”.
2. A Humidity Sensor problem will inhibit any humidification or dehumidification functions if the unit is operating at the time of the problem. If a Humidity Sensor problem is detected at the Start-Up Self-Test, the Self-Test will stop at the Humidity Sensor test until the “Select Up” button is pressed. To bypass the test, set Menu 19 (AUTOMATIC SELF-TEST ACKNOWLEDGE) to “OFF”.

COMPRESSOR SHORT-CYCLE ALARM
1. The alarm is turned ON or OFF in Menu 22 (COMPRESSOR SHORT-CYCLE ALARM).
2. The alarm is a warning only and will not prevent compressor operation.
3. One cycle is a combination of compressor starts for Cooling or Dehumidification functions.
4. If the compressor is started 10 times in a one (1) hour period the Alarm will be activated and the message “COMPRESSOR SHORT-CYCLE” will be displayed.
5. The compressor short-cycle time delay will be increased from five (5) to six (6) minutes for the next hour.
6. The Short-Cycle Alarm will not clear until a one (1) hour period has passed without ten (10) compressor starts.

POWER FAILURE RESTART ALARM
The mode of Restart is selected in Menu 26 (POWER PROBLEM OR RESTART MODE). The following is the sequence for each mode:

AUTOMATIC: NO MESSAGE OR ALARM
The unit will restart automatically after a power failure or reset. No audio alarm or LCD message displayed.

AUTOMATIC: MESSAGE, AUDIO ALARM & RELAY
The unit will automatically restart after a power failure or reset. The audio alarm will be activated and the message “POWER FAILURE RESTART” will be displayed on the LCD. The alarm is cleared by pressing the silence button when the message appears on the LCD. The alarm will also clear itself after five (5) minutes if there is no button activity.

MANUAL: MESSAGE, AUDIO ALARM & RELAY
The unit WILL NOT automatically restart after a power failure or reset. The “SILENCE” button must be pressed to restart the unit. The audio alarm will be activated and the message “POWER FAILURE RESTART” will be displayed on the LCD.

NO AIRFLOW ALARM
1. When No Airflow is detected, the Cooling, Reheat, Humidification and Dehumidification functions are locked out until the alarm condition is corrected.
2. The audio alarm is activated and a “NO AIRFLOW” message is displayed on the LCD.

DIRTY FILTER ALARM
When a Dirty filter is detected, the audio alarm is activated and “DIRTY FILTER: CHECK FILTERS” message is displayed on the LCD until the alarm condition is corrected.
HUMIDIFIER FAILURE. CHECK WATER PRESSURE SWITCH
1. The audio alarm is activated and “HUMIDIFIER FAILURE-CHECK WATER PRESSURE” message is displayed on the LCD.
2. The alarm will prevent the Humidifier from operating until the alarm condition is corrected.

FIRESTAT ALARM
1. The Firestat Temperature is set in Menu 42 (FIRE TEMPERATURE ALARM LIMIT).
2. If the return air temperature reaches the Firestat Temperature Alarm limit, the Blower, Cooling, Reheat, Humidification and Dehumidification functions are immediately terminated.
3. The audio alarm is activated and “FIRESTAT TRIPPED-UNIT SHUTDOWN” message is displayed on the LCD.
4. The alarm will prevent the unit from operating until the alarm condition is corrected.

HIGH TEMPERATURE ALARM
1. The high limit is set and/or disabled in Menu 9 (CHANGE HIGH TEMPERATURE ALARM LIMIT).
2. If the alarm is not disabled, and the return air temperature rises to the High Temperature Alarm Setpoint, the audio alarm is activated and “HIGH TEMPERATURE WARNING” message is displayed on the LCD.
3. The audio alarm is a warning only and will not prevent any of the unit functions from operating.
4. The alarm will remain until the alarm condition is corrected.

LOW TEMPERATURE ALARM
1. The low limit is set and/or disabled in Menu 10 (CHANGE LOW TEMPERATURE ALARM LIMIT).
2. If the alarm is not disabled, and the return air temperature falls to the Low Temperature Alarm Setpoint, the audio alarm is activated and “LOW TEMPERATURE WARNING” message is displayed on the LCD.
3. The alarm is a warning only and will not prevent any of the unit functions from operating.
4. The alarm will remain until the alarm condition is corrected.

HIGH HUMIDITY ALARM
1. The high limit is set and/or disabled in Menu 13 (CHANGE HIGH HUMIDITY ALARM LIMIT).
2. If the alarm is not disabled, and the return air humidity rises to the High Humidity Alarm Setpoint, the audio alarm is activated and “HIGH HUMIDITY WARNING” message is displayed on the LCD.
3. The alarm is a warning only and will not prevent any of the unit functions from operating.
4. The alarm will remain until the alarm condition is corrected.

LOW HUMIDITY ALARM
1. The low limit is set and/or disabled in Menu 14 (CHANGE LOW HUMIDITY ALARM LIMIT).
2. If the alarm is not disabled, and the return air humidity falls to the Low Humidity Alarm Setpoint, the audio alarm is activated and “LOW HUMIDITY WARNING” message is displayed on the LCD.
3. The alarm is a warning only and will not prevent any of the unit functions from operating.
4. The alarm will remain until the alarm condition is corrected.

LOW DISCHARGE TEMPERATURE ALARM
1. This alarm only applies if the optional Discharge Air Sensor is installed. Otherwise, the setting in Menu 25 (LOW DISCHARGE TEMP ALARM LIMIT) will automatically be configured to (SENSOR NOT INSTALLED ON THIS UNIT).
2. The low limit is set and/or disabled in Menu 25 (LOW DISCHARGE TEMP LIMIT).
3. If the alarm is not displayed when the discharge air temperature falls to the Low Discharge Alarm Setpoint, the audio alarm is activated and “LOW DISCHARGE AIR WARNING” message is displayed on the LCD.
4. If the optional Energy Saver with Compressor Supplement is used, the compressors will be inhibited for 15 minutes.
5. The alarm will remain until the alarm condition is corrected.

LOW VOLTAGE WARNING ALARM
1. When the measured 24 VAC control voltage that feeds the processor falls to 18 volts, the audio alarm is activated and “LOW VOLTAGE WARNING” message is displayed on the LCD.
2. The alarm is a warning only and will not directly prevent any of the unit functions from operating, but the presence of low voltage may cause operational problems, such as contactor or relay chattering.
3. The alarm will remain until the alarm condition is corrected.
SCHEDULED MAINTENANCE REQUIRED ALARM
1. The schedule is set and/or disabled in Menu 43 (SCHEDULED NORMAL MAINTENANCE).
2. The alarm is a warning only and will not prevent any of the unit functions from operating.
3. The alarm will remain until the alarm condition is corrected.

HIGH PRESSURE / INTERNAL OVERLOAD COMPRESSOR ALARM
1. When the High Pressure switch is tripped or compressor overload contact opens, the audio alarm is activated and “HIGH PRESSURE/INTERNAL OVERLOAD: COMP 1” or “COMP 2” message is displayed on the LCD.
2. The alarm will prevent the respective compressor from operating and must be MANUALLY RESET.
3. The alarm will remain until the alarm condition is corrected.

LOW PRESSURE COMPRESSOR ALARM
1. When the Low Pressure switch is tripped, the audio alarm is activated and “LOW PRESSURE COMPRESSOR 1” or “COMPRESSOR 2” message is displayed on the LCD.
2. The alarm will prevent the respective compressor from operating, but will automatically reset when the Low Pressure condition is corrected.
3. The alarm will remain until the alarm condition is corrected.

PERSON TO CONTACT ON ALARM
1. The alarm is set and/or disabled in Menu 39 (PERSON TO CONTACT ON ALARM).
2. The alarm is a warning only and will not prevent any of the unit functions from operating.
3. The alarm will remain until acknowledged by pressing the “SILENCE” button.

SMOKE ALARM (Optional)
1. The Smoke Alarm requires the optional Smoke Alarm Detector.
2. If the Smoke Detector senses smoke, the Blower, Cooling, Reheat, Humidification and Dehumidification functions are immediately terminated.
3. The audio alarm is activated and “SMOKE DETECTOR UNIT SHUTDOWN” message is displayed on the LCD.
4. The alarm will prevent the unit from operating until the alarm condition is corrected and the smoke detector is MANUALLY RESET.

HIGH CONDENSATE WATER LEVEL ALARM (Optional)
1. The High Condensate Water Level Alarm requires an optional secondary float switch and unit mount condensate pump.
2. When High Condensate Water Level Alarm goes off, the Cooling, Reheat, Humidification and Dehumidification functions are inhibited.
3. The audio alarm is activated and “HIGH CONDENSATE WATER LEVEL” message is displayed on the LCD.
4. The alarm will prevent the unit from operating until the alarm condition is corrected.
   (Condensate pump is checked and its float switch is open).

FAN MOTOR OVERLOAD ALARM (Optional)
1. This is an optional alarm that requires a motor overload relay contact for each motor.
2. One of the Menus - 28, 30, 32 or 34 (MESSAGE FOR OPTIONAL ALARM), must be programmed for “FAN MOTOR OVERLOAD”.
3. The audio alarm is activated and “FAN MOTOR OVERLOAD” message is displayed on the LCD.
4. The alarm is a warning only and will not prevent any of the unit functions from operating.
5. The alarm will remain until the alarm condition is corrected.

NO WATER FLOW ALARM (Optional)
1. This is an optional alarm that requires a field provided and installed flow switch.
2. The audio alarm is activated and “NO WATER FLOW” message is displayed on the LCD.
3. The alarm is a warning only and will not prevent any of the unit functions from operating.
4. The alarm will remain until the alarm condition is corrected.
STANDBY PUMP ON ALARM (Optional)
1. This is an optional alarm that requires a contact from the optional Pump Auto Changeover Control to be added to the Data Aire remote fluid cooler.
2. One of the Menus - 28, 30, 32 or 34 (MESSAGE FOR OPTIONAL ALARM), must be programmed for "STANDBY PUMP ON: CHECK PRIMARY PUMP".
3. The audio alarm is activated and "STANDBY PUMP ON: CHECK PRIMARY PUMP" message is displayed on the LCD.
4. The alarm is a warning only and will not prevent any of the unit functions from operating.
5. The alarm will remain until the alarm condition is corrected.

UPS/ALTERNATE POWER ON ALARM (Optional)
1. This is an optional alarm that requires an input contact from a field supplied alternate power source.
2. One of the Menus - 28, 30, 32 or 34 (MESSAGE FOR OPTIONAL ALARM), must be programmed for "UPS/ALTERNATE POWER ON".
3. The audio alarm is activated and "UPS/ALTERNATE POWER ON" message is displayed on the LCD.
4. The Alarm is a warning only and will not prevent any of the unit functions from operating.
5. The alarm will remain until the alarm condition is corrected.

REHEAT INHIBITED ALARM (Optional)
1. This is an optional alarm that requires an input contact from a field supplied alternate power source.
2. One of the Menus - 28, 30, 32 or 34 (MESSAGE FOR OPTIONAL ALARM), must be programmed for "REHEAT INHIBITED".
3. The audio alarm is activated and "REHEAT INHIBITED" message is displayed on the LCD.
4. The Reheat is shut off, if operating, and is locked out when this alarm is present.
5. The alarm will remain until the alarm condition is corrected.

HUMIDIFICATION INHIBITED ALARM (Optional)
1. This is an optional alarm that requires an input contact from a field supplied alternate power source.
2. One of the Menus - 28, 30, 32 or 34 (MESSAGE FOR OPTIONAL ALARM), must be programmed for "HUMIDIFICATION INHIBITED".
3. The audio alarm is activated and "HUMIDIFICATION INHIBITED" message is displayed on the LCD.
4. The Humidification is shut off, if operating, and is locked out when this alarm is present.
5. The alarm will remain until the alarm condition is corrected.

HUMIDIFICATION AND REHEAT INHIBITED ALARM (Optional)
1. This is an optional alarm that requires an input contact from a field supplied alternate power source.
2. One of the Menus - 28, 30, 32 or 34 (MESSAGE FOR OPTIONAL ALARM), must be programmed for "REHEAT AND HUMIDIFICATION INHIBITED".
3. The audio alarm is activated and "REHEAT AND HUMIDIFICATION INHIBITED" message is displayed on the LCD.
4. Both Reheat and Humidification is shut off, if operating, and are locked out when this alarm is present.
5. The alarm will remain until the alarm condition is corrected.

CUSTOM MESSAGE ALARM (Optional)
1. This is an optional alarm that is required to be programmed by the factory and is limited to 25 characters, including spaces.
2. One of the Menus - 28, 30, 32 or 34 (MESSAGE FOR OPTIONAL ALARM), must be programmed for "CUSTOM MESSAGE ALARM".
3. The audio alarm is activated and the "CUSTOM MESSAGE" is displayed on the LCD.
4. The alarm will remain until the alarm condition is corrected.
**DATA ALARM PROCESSOR II TROUBLESHOOTING GUIDE**

1. The power must be turned off before servicing the panel.
2. Factory notification is required before any parts are replaced in the panel.
3. No meters or any type of test instruments are to be used on the panel without specific instructions from the factory.

<table>
<thead>
<tr>
<th>PROBLEM</th>
<th>POSSIBLE CAUSE</th>
<th>CHECK OR REMEDY</th>
</tr>
</thead>
<tbody>
<tr>
<td>No power or panel does not come on</td>
<td>Main disconnect switch is off</td>
<td>Turn main disconnect switch on</td>
</tr>
<tr>
<td></td>
<td>Optional remote shutdown contact is open</td>
<td>Check remote shutdown contact</td>
</tr>
<tr>
<td></td>
<td>Loose connections on P1 plug or cable</td>
<td>Check P1 connections on DAP-II main PC board</td>
</tr>
<tr>
<td></td>
<td>F1 fuse of DAP-II is blown</td>
<td>Replace with 2 amp fuse</td>
</tr>
<tr>
<td></td>
<td>Transformer circuit breaker is tripped</td>
<td>Reset the circuit breaker on transformer</td>
</tr>
<tr>
<td>Operates but no display</td>
<td>Loose connections on IC chips of PC board</td>
<td>Turn panel off. Firmly press on all IC chips that plug into sockets on PC board</td>
</tr>
<tr>
<td></td>
<td>Loose ground connections</td>
<td>Tighten screws that mount PC board to aluminum enclosure</td>
</tr>
<tr>
<td>Display is too dim or too bright</td>
<td>Improper LCD adjustment</td>
<td>Adjust the LCD pot, R180, on PC board that is located next to the LCD</td>
</tr>
<tr>
<td>Self-Test Failures: EPROM</td>
<td>Loose connection or contaminated EPROM</td>
<td>Insure EPROM chip is secured in U30 socket on PC board. Replace EPROM chip</td>
</tr>
<tr>
<td></td>
<td>Static RAM</td>
<td>Loose connection or faulty SRAM</td>
</tr>
<tr>
<td></td>
<td>EEPROM</td>
<td>Loose connection or contaminated EEPROM</td>
</tr>
<tr>
<td>RAM SIGNATURE</td>
<td>Empty historical memory</td>
<td>Press select up button, if failure is at start-up. Check back-up battery</td>
</tr>
<tr>
<td>ANALOG</td>
<td>24 VAC power is low</td>
<td>Check 24 VAC power and reset panel</td>
</tr>
<tr>
<td>DC REGULATED</td>
<td>24 VAC power is low</td>
<td>Check 24 VAC power and reset panel</td>
</tr>
<tr>
<td>15 VDC REGULATED</td>
<td>24 VAC power is low</td>
<td>Check 24 VAC power and reset panel</td>
</tr>
<tr>
<td>BATTERY VOLTAGE</td>
<td>Battery low or disconnected</td>
<td>Check battery, replace if lower than 2.8 V</td>
</tr>
<tr>
<td>RETURN TEMP SENSOR</td>
<td>Loose connections or sensor problem</td>
<td>Check connections. See temp. sensor problem</td>
</tr>
<tr>
<td>DISCHARGE TEMP SENSOR</td>
<td>Loose connections or sensor problem</td>
<td>Check connections. See temp. sensor problem</td>
</tr>
<tr>
<td>HUMIDITY SENSOR</td>
<td>Loose connections or sensor problem</td>
<td>Check connections. See humidity sensor problem</td>
</tr>
<tr>
<td>BUTTONS</td>
<td>Faulty button(s) or cover is pressing on button(s)</td>
<td>Insure that the cover is not pressing on the button(s)</td>
</tr>
<tr>
<td>Blower does not come on</td>
<td>Bad connections on the plugs or cable (P2-1, P2-2, P2-3)</td>
<td>Check connections. Use blower manual override switch to test</td>
</tr>
<tr>
<td></td>
<td>F2 fuse of DAP-II is blown</td>
<td>Replace with 8 amp fuse</td>
</tr>
<tr>
<td></td>
<td>One of the manual override switches is on and the manual override for the blower is off (down).</td>
<td>Check manual override switches, make sure they are all off and the manual override switch for the blower is on (up). <strong>Manual override mode</strong></td>
</tr>
<tr>
<td></td>
<td>Smoke detector alarm activated</td>
<td>Reset the smoke detector</td>
</tr>
<tr>
<td></td>
<td>Firestat alarm activated</td>
<td>System is inhibited until return air temperature is below the firestat limit (Menu 42)</td>
</tr>
<tr>
<td></td>
<td>Faulty blower relay (K5)</td>
<td>Use manual diagnostic relay test D3 to check. Refer to Menu 20</td>
</tr>
<tr>
<td>Temperature sensor problem alarm is activated</td>
<td>Loose connections</td>
<td>Check connections and cable, P5-7 &amp; P5-8</td>
</tr>
<tr>
<td></td>
<td>Faulty sensor</td>
<td>Use sensor chart to check VDC of sensor</td>
</tr>
<tr>
<td></td>
<td>Incorrect calibration</td>
<td>Contact Data Aire Technical Support</td>
</tr>
<tr>
<td>PROBLEM</td>
<td>POSSIBLE CAUSE</td>
<td>CHECK OR REMEDY</td>
</tr>
<tr>
<td>---------</td>
<td>---------------</td>
<td>----------------</td>
</tr>
<tr>
<td>Humidity sensor problem alarm is activated</td>
<td>Loose connections</td>
<td>Check connections and cable (P5-3, 4, -5, -6)</td>
</tr>
<tr>
<td>Faulty sensor</td>
<td>Check for 12VDC between pin #31 and #34 of TB2 (located inside the electrical box). Check for 5VDC between pin #32 and #34 of TB2. Use sensor chart to verify VDC between pin #33 and #34 of TB2</td>
<td></td>
</tr>
<tr>
<td>Compressors do not come on</td>
<td>No call for cooling</td>
<td>Check temperature setpoint and deadband</td>
</tr>
<tr>
<td>Cooling stages are in short-cycle time delay period</td>
<td>Wait 5 to 10 minutes or reset panel</td>
<td></td>
</tr>
<tr>
<td>Inhibited by no airflow alarm</td>
<td>Correct for no airflow alarm</td>
<td></td>
</tr>
<tr>
<td>Incorrect configuration on compressor menu</td>
<td>Check settings on Menu 50. Also make sure unit is not configured for chilled water, check Menu 53</td>
<td></td>
</tr>
<tr>
<td>Loose connections on plug or cable (P2-4, P2-5)</td>
<td>Check connections. Use compressor manual override switches to test</td>
<td></td>
</tr>
<tr>
<td>F2 fuse of DAP-II is blown</td>
<td>Replace with 8 amp fuse</td>
<td></td>
</tr>
<tr>
<td>Panel is operating in manual override and the compressor manual override is not on (up)</td>
<td>Check manual override switches</td>
<td></td>
</tr>
<tr>
<td>Smoke detector alarm activated</td>
<td>Reset the smoke detector</td>
<td></td>
</tr>
<tr>
<td>Firestat alarm activated</td>
<td>System is inhibited until return air temperature is below the firestat limit (Menu 42)</td>
<td></td>
</tr>
<tr>
<td>Faulty cool 1st stage K6 relay</td>
<td>Use manual diagnostic relay test D3 to check. Refer to Menu 20</td>
<td></td>
</tr>
<tr>
<td>Faulty cool 2nd stage K7 relay</td>
<td>Use manual diagnostic relay test D3 to check. Refer to Menu 20</td>
<td></td>
</tr>
<tr>
<td>Incorrect control logic configuration</td>
<td>Check Menu 45 (Control Logic). Make sure it is set for Setpoint Deviation</td>
<td></td>
</tr>
<tr>
<td>Optional compressor unloader for cool 3 and cool 4 does not come on</td>
<td>No call for 3rd or 4th stage cooling</td>
<td>Check temperature setpoint and deadband</td>
</tr>
<tr>
<td>Incorrect configuration in compressor menu</td>
<td>Check settings in Menu 50. It should be set for primary/secondary/primary/secondary</td>
<td></td>
</tr>
<tr>
<td>Panel is operating in manual override and the compressor manual override is not on (up)</td>
<td>Check manual override switches</td>
<td></td>
</tr>
<tr>
<td>Faulty cool 3rd stage K10 relay</td>
<td>Use manual diagnostic relay test D3 to check. Refer to Menu 20</td>
<td></td>
</tr>
<tr>
<td>Faulty cool 4th stage K11 relay</td>
<td>Use manual diagnostic relay test D3 to check. Refer to Menu 20</td>
<td></td>
</tr>
<tr>
<td>Incorrect Control Logic configuration</td>
<td>Check Menu 45 (Control Logic). Make sure it is set for Setpoint Deviation</td>
<td></td>
</tr>
<tr>
<td>Loose connection on optional expansion module card</td>
<td>Check expansion module card connections on PC board</td>
<td></td>
</tr>
<tr>
<td>Loose connections on plugs or cable</td>
<td>Check connections on P6-2, P6-3 and wires 40 &amp; 41</td>
<td></td>
</tr>
<tr>
<td>Optional Energy Saver not functioning</td>
<td>No call for cooling</td>
<td>Check temperature setpoint and deadband</td>
</tr>
<tr>
<td>Waterstat not closed</td>
<td>Check waterstat and 24 VAC on pin #28 of TB2</td>
<td></td>
</tr>
<tr>
<td>Waterstat changeover setpoint too high</td>
<td>Adjust as required</td>
<td></td>
</tr>
<tr>
<td>Loose connection on pin P4-14</td>
<td>Check connections and cable</td>
<td></td>
</tr>
<tr>
<td>Incorrect configuration</td>
<td>Check settings in Menu 53. It must be set for Energy Saver Cooling</td>
<td></td>
</tr>
<tr>
<td>Inhibited by interstage time delay</td>
<td>Refer to cooling control logic</td>
<td></td>
</tr>
<tr>
<td>The following applies to Energy Saver without compressor supplement</td>
<td>Refer to Energy Saver control logic without compressor supplement</td>
<td></td>
</tr>
<tr>
<td>Return temperature is higher than the Energy Saver range, temperature SP + DB + 2.0°F</td>
<td>Check setting in Menu 23. An optional discharge air sensor is required for Energy Saver with compressor supplement</td>
<td></td>
</tr>
<tr>
<td>Energy Saver is inhibited for 1 hour</td>
<td>Energy Saver will resume in 1 hour if the water temperature falls within the operating range. Refer to Energy Saver Control Logic</td>
<td></td>
</tr>
<tr>
<td>PROBLEM</td>
<td>POSSIBLE CAUSE</td>
<td>CHECK OR REMEDY</td>
</tr>
<tr>
<td>---------</td>
<td>---------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>Chilled Water valve does not modulate</td>
<td>No call for cooling</td>
<td>Check temperature setpoint and deadband</td>
</tr>
<tr>
<td></td>
<td>Inhibited by no airflow alarm</td>
<td>Correct no airflow alarm</td>
</tr>
<tr>
<td></td>
<td>Incorrect configuration</td>
<td>Check settings in Menu 53</td>
</tr>
<tr>
<td></td>
<td>Loose connection on plugs or cable P3-1, P3-2</td>
<td>Check connections. Use chilled water manual override switch to test</td>
</tr>
<tr>
<td></td>
<td>Panel is operating in manual override and the compressor override is not on (up)</td>
<td>Check manual override switches</td>
</tr>
<tr>
<td></td>
<td>Dehumidification is inhibited by reheat</td>
<td>Refer to Dehumidification control on Control Logic</td>
</tr>
<tr>
<td></td>
<td>Faulty 0 - 10VDC output module</td>
<td>Use manual diagnostic test D4 to check. Refer to Menu 20</td>
</tr>
<tr>
<td>Reheat does not come on</td>
<td>No call for reheat</td>
<td>Check temperature setpoint and deadband</td>
</tr>
<tr>
<td></td>
<td>Inhibited by no airflow</td>
<td>Correct no airflow alarm</td>
</tr>
<tr>
<td></td>
<td>Incorrect configuration</td>
<td>Check settings in Menu 51</td>
</tr>
<tr>
<td></td>
<td>Inhibited by humidification</td>
<td>Normal control logic for computer room application. Refer to Reheat Control Logic</td>
</tr>
<tr>
<td></td>
<td>Loose connection on plugs or cable P2-6, P2-7, P2-8</td>
<td>Check connections. Use reheat manual override switches to check</td>
</tr>
<tr>
<td></td>
<td>F2 fuse of DAP-II is blown</td>
<td>Replace with 8 amp fuse</td>
</tr>
<tr>
<td></td>
<td>Panel is operating in manual override and the reheat override switch is not on (up)</td>
<td>Check manual override switches</td>
</tr>
<tr>
<td></td>
<td>Faulty 1st stage reheat K8 relay</td>
<td>Use manual diagnostic relay test D3 to check. Refer to Menu 20</td>
</tr>
<tr>
<td></td>
<td>Faulty 2nd stage reheat K2 relay</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Faulty 3rd stage reheat K3 relay</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Incorrect configuration</td>
<td>Check settings in Menu 51. Also check that Menu 45 is set for Setpoint Deviation</td>
</tr>
<tr>
<td></td>
<td>Reheat thermal cutout switch</td>
<td>Check thermal cutout switch in reheat box assembly</td>
</tr>
<tr>
<td>Humidification does not come on</td>
<td>No call for humidification</td>
<td>Check humidity setpoint and deadband</td>
</tr>
<tr>
<td></td>
<td>Inhibited by no airflow</td>
<td>Correct no airflow alarm</td>
</tr>
<tr>
<td></td>
<td>Incorrect configuration</td>
<td>Check settings in Menu 51</td>
</tr>
<tr>
<td></td>
<td>Inhibited by Humidity Anticipation</td>
<td>Refer to Humidity Anticipation Logic. Check Menu 21</td>
</tr>
<tr>
<td></td>
<td>Loose connection on plugs or cable P2-9</td>
<td>Check connections, use humidifier manual override switch to test</td>
</tr>
<tr>
<td></td>
<td>F2 fuse of DAP-II is blown</td>
<td>Replace with 8 amp fuse</td>
</tr>
<tr>
<td></td>
<td>Panel is operating in manual override and the humidifier override is not on (up)</td>
<td>Check manual override switches</td>
</tr>
<tr>
<td></td>
<td>Faulty humidifier K9 relay</td>
<td>Use manual diagnostic relay test D3 to check. Refer to Menu 20</td>
</tr>
<tr>
<td></td>
<td>Incorrect configuration</td>
<td>Check settings in Menu 52. Also check that Menu 45 is set for Setpoint Deviation</td>
</tr>
<tr>
<td></td>
<td>Humidifier Problem alarm on</td>
<td>Correct the alarm. Check humidifier supply water pressure switch</td>
</tr>
<tr>
<td></td>
<td>Restricted by interstage time delay or autoflush timer panel</td>
<td>Wait 5 to 10 minutes or reset the panel. Refer to humidification logic</td>
</tr>
<tr>
<td>Modulating humidifier does not come on</td>
<td>No call for humidification</td>
<td>Check humidity setpoint and deadband</td>
</tr>
<tr>
<td></td>
<td>Loose connection on plugs or cable P6-12, P6-13</td>
<td>Check connections. Use humidifier manual override switch to test</td>
</tr>
<tr>
<td></td>
<td>No DC output</td>
<td>Use manual diagnostic output test D4 to check. Refer to Menu 20</td>
</tr>
<tr>
<td></td>
<td>Incorrect settings</td>
<td>Check settings in Menu 52</td>
</tr>
<tr>
<td>PROBLEM</td>
<td>POSSIBLE CAUSE</td>
<td>CHECK OR REMEDY</td>
</tr>
<tr>
<td>---------------------------------------------</td>
<td>-----------------------------------------------------</td>
<td>--------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Optional autoflush timer does not work</td>
<td>Incorrect setting</td>
<td>Check setting in Menu 41</td>
</tr>
<tr>
<td></td>
<td>Loose connections on expansion module</td>
<td>Check expansion card connections on PC board</td>
</tr>
<tr>
<td></td>
<td>Autoflush timer is off</td>
<td>Check setting in Menu 41</td>
</tr>
<tr>
<td></td>
<td>Loose connections on cable</td>
<td>Check connections. Refer to wiring diagram</td>
</tr>
<tr>
<td></td>
<td>Faulty autoflush K15 relay</td>
<td>Use manual diagnostic relay test D3 to check. Refer to Menu 20</td>
</tr>
<tr>
<td>Dehumidification does not come on</td>
<td>No call to Dehumidification</td>
<td>Check humidity setpoint and deadband</td>
</tr>
<tr>
<td></td>
<td>Inhibited by no airflow</td>
<td>Correct no airflow alarm</td>
</tr>
<tr>
<td></td>
<td>Incorrect configuration</td>
<td>Check settings in Menus 21 and 24. Also check that Menu 45 is set for Setpoint Deviation</td>
</tr>
<tr>
<td></td>
<td>Inhibited by humidity anticipation</td>
<td>Refer to humidity logic. Check Menu 21</td>
</tr>
<tr>
<td></td>
<td>Inhibited by reheat</td>
<td>Refer to dehumidification logic. Check Menu 24</td>
</tr>
<tr>
<td></td>
<td>Dehumidification is off</td>
<td>Check Menu 24</td>
</tr>
<tr>
<td></td>
<td>Unit does not have reheat</td>
<td>On units without reheat, the dehumidification mode is non operable</td>
</tr>
<tr>
<td></td>
<td>Panel is operating in manual override and the</td>
<td>Check manual override switches</td>
</tr>
<tr>
<td></td>
<td>compressor override is not on (up)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Restricted by interstage time delay</td>
<td>Wait 1 to 5 minutes or reset panel. Refer to dehumidification logic</td>
</tr>
<tr>
<td>Panel locks up</td>
<td>24 VAC power is low</td>
<td>Check 24 VAC power. Reset panel</td>
</tr>
<tr>
<td></td>
<td>Loose ground connections</td>
<td>Tighten mounting screws of PC board to aluminum enclosure. Reset panel</td>
</tr>
<tr>
<td>Watchdog LED lit (on)</td>
<td>DAP-II panel has experienced a frozen display problem or loose ground</td>
<td>Tighten mounting screws of PC board to aluminum enclosure. Reset panel</td>
</tr>
<tr>
<td>Audio alarm does not sound</td>
<td>Audio alarm has been turned off</td>
<td>Check setting on Menu 18</td>
</tr>
<tr>
<td></td>
<td>Faulty alarm buzzer</td>
<td>Use manual diagnostic relay test D8 to check. Refer to Menu 20. Contact factory technical support if buzzer does not sound in manual diagnostics test</td>
</tr>
<tr>
<td>Alarm contacts do not close</td>
<td>Alarm contacts are disabled and/or not programmed correctly</td>
<td>Check settings for Alarms. See Menus 36, 37 &amp; 38</td>
</tr>
<tr>
<td></td>
<td>Faulty alarm relays K4, K13, K14</td>
<td>Use manual diagnostic relay test D3 to check. Refer to Menu 20</td>
</tr>
<tr>
<td>Condenser contacts do not close</td>
<td>Loose connections of auxiliary contact and/or optional expansion module</td>
<td>Check auxiliary compressor contact P6-4 and P6-5 on expansion module and check module to PC board connection</td>
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<tr>
<td></td>
<td>Loose or faulty relay K12 on expansion module</td>
<td>Check relay connections and use manual diagnostic relay test D3 to check. Refer to Menu 20</td>
</tr>
<tr>
<td>Faulty standard alarm conditions. Refer to alarm features</td>
<td>Bad connections on plugs or cable</td>
<td>Refer to wiring diagram to check connections</td>
</tr>
<tr>
<td></td>
<td>Loose connections on expansion module</td>
<td>Check expansion module connections to PC board</td>
</tr>
<tr>
<td>Faulty optional alarm conditions. Refer to alarm features</td>
<td>Bad connections on plugs or cable</td>
<td>Refer to wiring diagram to check connections</td>
</tr>
<tr>
<td></td>
<td>Incorrect settings on optional alarm input</td>
<td>Check settings in Menus 28 thru 35</td>
</tr>
<tr>
<td>High or Low Temperature or Humidity Warning</td>
<td>Return air temperature or humidity is above or below the alarm limits</td>
<td>Silence the audio alarm. The alarm deactivates automatically when the temperature or humidity returns to within the alarm limits</td>
</tr>
<tr>
<td>DC VOLTAGE vs RELATIVE HUMIDITY</td>
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<tr>
<td>-------------------------------</td>
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<td>1.11 10.0% 1.95 37.1% 2.78 63.9%</td>
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<td>1.14 11.0% 1.98 38.1% 2.82 65.2%</td>
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<tr>
<td>1.17 11.9% 2.01 39.0% 2.85 66.1%</td>
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<td>1.20 12.9% 2.04 40.0% 2.88 67.1%</td>
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<td>1.23 13.9% 2.07 41.0% 2.91 68.1%</td>
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<td>1.27 15.2% 2.10 41.9% 2.94 69.0%</td>
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<td>1.30 16.1% 2.13 42.9% 2.97 70.0%</td>
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<td>1.33 17.1% 2.16 43.9% 3.00 71.0%</td>
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<td>1.36 18.1% 2.20 45.2% 3.03 71.9%</td>
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<td>1.39 19.0% 2.23 46.1% 3.06 72.9%</td>
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<td>1.42 20.0% 2.26 47.1% 3.09 73.9%</td>
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<td>1.45 21.0% 2.29 48.1% 3.13 75.2%</td>
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<tr>
<td>1.48 21.9% 2.32 49.0% 3.16 76.1%</td>
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<tr>
<td>1.51 22.9% 2.35 50.0% 3.19 77.1%</td>
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<tr>
<td>1.54 23.9% 2.38 51.0% 3.22 78.1%</td>
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<tr>
<td>1.58 25.2% 2.41 51.9% 3.25 79.0%</td>
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<tr>
<td>1.61 26.1% 2.44 52.9% 3.28 80.0%</td>
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<tr>
<td>1.64 27.1% 2.47 53.9% 3.31 81.0%</td>
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<tr>
<td>1.67 28.1% 2.51 55.2% 3.34 81.9%</td>
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<tr>
<td>1.70 29.0% 2.54 56.1% 3.37 82.9%</td>
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<tr>
<td>1.73 30.0% 2.57 57.1% 3.40 83.9%</td>
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<td>1.76 31.0% 2.60 58.1% 3.44 85.2%</td>
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<tr>
<td>1.79 31.9% 2.63 59.0% 3.47 86.1%</td>
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<td>1.82 32.9% 2.66 60.0% 3.50 87.1%</td>
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<tr>
<td>1.85 33.9% 2.69 61.0% 3.53 88.1%</td>
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<td>1.89 35.2% 2.72 61.9% 3.56 89.0%</td>
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<tr>
<td>1.92 36.1% 2.75 62.9% 3.59 90.0%</td>
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<tr>
<th>DC VOLTAGE vs TEMPERATURE</th>
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<td>2.800 44.3F 2.873 57.5F 2.948 71.0F</td>
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<td>2.801 44.5F 2.876 58.0F 2.951 71.5F</td>
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<td>2.804 45.0F 2.879 58.5F 2.954 72.0F</td>
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<tr>
<td>2.807 45.5F 2.882 59.0F 2.957 72.5F</td>
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<td>2.809 46.0F 2.884 59.5F 2.959 73.0F</td>
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<td>2.812 46.5F 2.887 60.0F 2.962 73.5F</td>
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<td>2.815 47.0F 2.890 60.5F 2.965 74.0F</td>
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<td>2.818 47.5F 2.893 61.0F 2.968 74.5F</td>
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<td>2.820 48.0F 2.895 61.5F 2.970 75.0F</td>
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<td>2.831 50.0F 2.907 63.5F 2.982 77.0F</td>
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<td>2.840 51.5F 2.915 65.0F 2.990 78.5F</td>
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<td>2.843 52.0F 2.918 65.5F 2.993 79.0F</td>
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<td>2.848 53.0F 2.923 66.5F 2.998 80.0F</td>
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<td>2.852 53.5F 2.926 67.0F</td>
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<td>2.854 54.0F 2.929 67.5F</td>
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<td>2.857 54.5F 2.932 68.0F</td>
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<td>2.859 55.0F 2.934 68.5F</td>
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<td>2.862 55.5F 2.937 69.0F</td>
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<td>2.865 56.0F 2.940 69.5F</td>
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<td>2.868 56.5F 2.943 70.0F</td>
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<tr>
<td>2.870 57.0F 2.945 70.5F</td>
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DAP-II HUMIDITY & TEMPERATURE SENSOR CHART

31
DAP-II WITH NETWORK COMMUNICATION CARD

DATA ALARM PROCESSOR II P/N 160-300-080

SERIAL NUMBER

DATA AIRE INC.
ORANGE, CA 92865

DAP-II WITH EXPANSION AND NETWORK COMMUNICATION CARDS

33
OPTIONAL ANALOG INPUT MODULE

P/N 160-300-083

RIBBON CABLE CONNECTS TO SOCI PORT OF DATA ALARM PROCESSOR II (DAP II) PANEL

TB1
12 DC OUTPUT
24 DC OUTPUT
GND
4-20 MA INPUT
0-5 VDC INPUT
0-10 VDC INPUT

TB2
12 DC OUTPUT
24 DC OUTPUT
GND
4-20 MA INPUT
0-5 VDC INPUT
0-10 VDC INPUT

TB3
WATER DETECTION
CABLE INPUT

+H2O

GND

EXPANSION & NETWORK CARDS

P/N 160-300-081
P/N 160-300-082

INSTALLATION OF EXPANSION & NETWORK CARDS

DATA AIRE, INC.
A CONSTRUCTION SPECIALTIES INC. Company

DRAWN BY: ACROSS: SCALE: 0
CHECKED BY: GR DAPIBOX
DATE: 11-29-95 SHEET 1 OF 1
MATERIAL: P/S 1 - 1

DAP II W/ EXP. & NETWORK CARDS
PART NO.
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<tr>
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<tbody>
<tr>
<td>1</td>
<td>24 VAC TRANSFORMER</td>
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<td>2</td>
<td>24 VAC TRANSFORMER</td>
<td>27</td>
</tr>
<tr>
<td>3</td>
<td>24 VAC COMMON</td>
<td>28</td>
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<tr>
<td>4</td>
<td>24 VAC COMMON</td>
<td>29</td>
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<tr>
<td>5</td>
<td>BLOWER</td>
<td>30</td>
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<tr>
<td>6</td>
<td>COMPRESSOR 1</td>
<td>31</td>
</tr>
<tr>
<td>7</td>
<td>COMPRESSOR 2</td>
<td>32</td>
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<tr>
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<td>REHEAT 1</td>
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<td>REHEAT 2</td>
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<td>10</td>
<td>REHEAT 3</td>
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<td>11</td>
<td>REMOTEALARM 1 COMMON</td>
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<td>REMOTEALARM 1 NORMALLY OPEN</td>
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<td>13</td>
<td>WATER VALVE +</td>
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<td>14</td>
<td>WATER VALVE -</td>
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<td>OPTIONAL INPUT 3</td>
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<td>HUMIDIFIER FAIL</td>
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<td>22</td>
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<td>LP FAILURE COMPRESSOR 2</td>
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</table>

**DAP-II TERMINAL BLOCK IDENTIFICATION**
* All communication wire must be 18 gauge twisted pair with a drain line, up to 1000 feet long.

** Up to 32 units may be connected in any order (daisy chained). Unit identification numbers are programmed at start-up.

*** Note: These items are field provided and installed at time of DART II board installation.

- Drain line (typ.) (field supplied)
- Daisy chain between communication cards (field supplied)
- Shielded cable with drain line (field supplied)
- Field power supply
- Phone line
- RS232 connection point
- Built-in modem
- DART II board (data aire supplied)
- Host PC station
- Phone jack
- Phone plug

TYPICAL DART 200 wiring and component configuration
10-28-97 GR/NETWK-PC
<table>
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<th>PART NUMBER</th>
<th>DESCRIPTION</th>
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<tbody>
<tr>
<td>160-002-001</td>
<td>DAP-II CABLE, 38-WIRE</td>
</tr>
<tr>
<td>160-002-002</td>
<td>DAP-II CABLE 13-WIRE, FOR Optionally EXPANSION MODULE</td>
</tr>
<tr>
<td>160-002-003</td>
<td>DAP-II CABLE, 38-WIRE, 25' TO 50', FOR REMOTE PANEL INSTALLATION</td>
</tr>
<tr>
<td>160-002-004</td>
<td>DAP-II CABLE, 13-WIRE, 25' TO 50', FOR REMOTE PANEL INSTALLATION WITH Optional EXPANSION MODULE</td>
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<tr>
<td>160-011-101</td>
<td>CONDENSATE PROBE</td>
</tr>
<tr>
<td>160-011-203</td>
<td>HUMIDITY SENSOR FOR DAP-II</td>
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<tr>
<td>160-200-250</td>
<td>DART III - BOARD</td>
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<tr>
<td>160-200-060</td>
<td>TEMPERATURE SENSOR FOR DAP-II</td>
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<td>160-200-076</td>
<td>BATTERY FOR DAP-II</td>
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<td>160-300-080</td>
<td>DAP-II</td>
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<tr>
<td>160-300-081</td>
<td>DAP-II EXPANSION CARD (Optional)</td>
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<td>160-300-082</td>
<td>DAP-II COMMUNICATION CARD (Optional)</td>
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<td>160-300-083</td>
<td>DAP-II ANALOG INPUT MODULE (Optional)</td>
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<td>160-300-085</td>
<td>WATER DETECTION MODULE (Optional)</td>
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<td>162-020-026</td>
<td>26-PIN TERMINAL BLOCK</td>
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<tr>
<td>165-920-001</td>
<td>CABLE, SHIELD, 6-WIRE (Optional)</td>
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<tr>
<td>160-500-002</td>
<td>DAP-II BEZEL</td>
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</tbody>
</table>

CONTACT THE DATA AIRE PARTS DEPARTMENT FOR ASSISTANCE

PLEASE HAVE JOB NUMBER, MODEL NUMBER AND SERIAL NUMBER FROM UNIT I.D. PLATE AVAILABLE

DATA AIRE INC., RESERVES THE RIGHT TO MAKE CHANGES FOR THE PURPOSE OF PRODUCT IMPROVEMENT, OR TO WITHDRAW ANY DESIGN WITHOUT NOTICE.