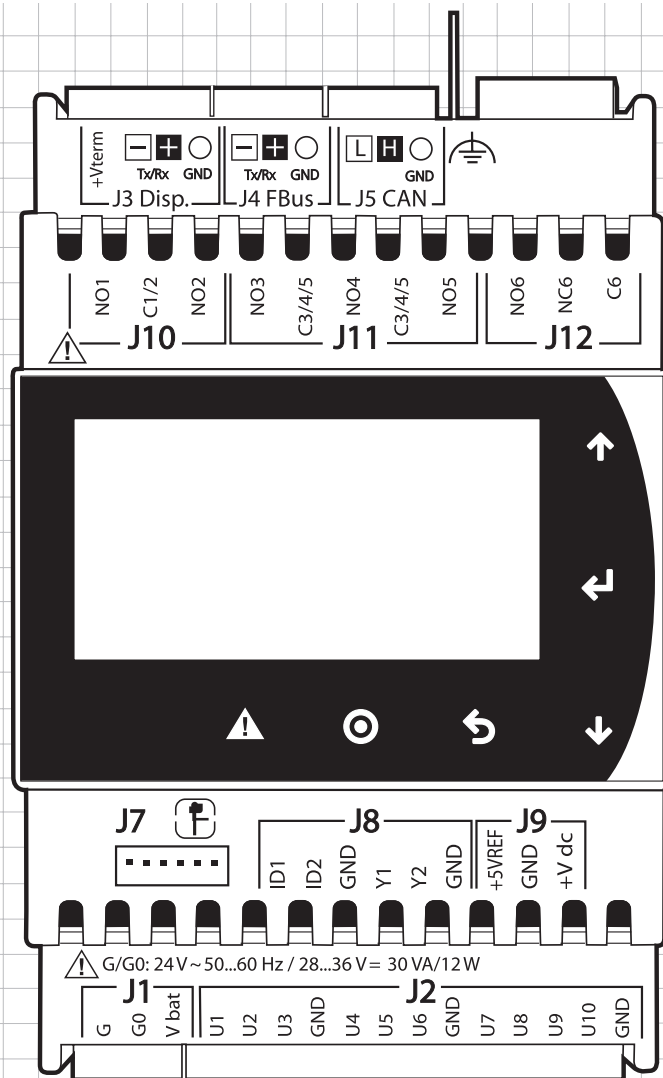




CM3540 Series Controller

Operation Manual for LW Units with CE Marking

- Advanced program capabilities
- Internal Display Terminal (IDT)
- Multiple communication interface options:
 - LonWorks®
 - BACNet™ Ethernet
 - BACNet™ MS/TP
 - Modbus®
- Precise temperature and humidity control



CM3540 Controller



 **DANGER**

ONLY TRAINED, QUALIFIED PERSONNEL SHOULD INSTALL AND/OR SERVICE DESERT AIRE EQUIPMENT. SERIOUS INJURY, DEATH AND PROPERTY DAMAGE CAN RESULT FROM IMPROPER INSTALLATION/SERVICE OF THIS EQUIPMENT. HIGH VOLTAGE ELECTRICAL COMPONENTS AND REFRIGERANT UNDER PRESSURE ARE PRESENT.

Desert Aire Dehumidification Equipment Standard Limited Warranty

Desert Aire warrants the dehumidifying unit to be free from defects in materials and workmanship subject to the terms, conditions and limitations stated herein.

TERMS

Desert Aire warrants all components (except as noted) for a period of two (2) years from the date of shipment. This warranty shall be limited to the supply of new or rebuilt parts for the part which has failed because of defects in workmanship or material, and does not include the cost for labor, transportation or other costs not herein provided for. Replaced parts are warranted only for the remaining portion of the original warranty period.

CONDITIONS

The warranty is subject to the following conditions:

1. The unit must be properly installed and maintained in accordance with the Desert Aire "Installation and Operation Manual" provided with each unit and/or other documentation provided.
2. **The Start-Up Report must be completed and returned to Desert Aire Service for evaluation. If no deficiencies are identified a Warranty Validation Letter will be issued that provides all warranty dates and coverage. If installation or start-up deficiencies are present, these must be corrected and communicated to Desert Aire in order to activate warranty.**
3. This warranty shall not apply to any part that has been tampered with, or has been subject to misuse, negligence or accident. A warranty can be obtained for altered equipment but only with written consent from Desert Aire.
4. The following parts and components are excluded from the warranty: belts, filters, driers, fuses and refrigerant.
5. Refrigerant coils or other components that corrode due to corrosive air quality will not be warranted.
6. All replacements or repairs will be FOB Germantown, WI.
7. This warranty shall be null and void if defects or damages result from unauthorized opening of the refrigerant circuit, tampering with factory set controls, or operating outside the original design conditions.
8. Desert Aire shall not be liable for labor costs incurred in diagnosing the problem, nor the removal or replacement of the part or parts being repaired.
9. Desert Aire must preauthorize all warranty coverage described herein.

Extended Warranty:

Your Desert Aire unit may have extended warranties beyond this Standard Limited Warranty document. Extended warranties are only available at the time of the purchase of the original equipment. These extended warranties are covered under a separate document and their terms and conditions are separate from this document. It is mentioned in this document for informational purposes only. Any Extended Warranties will be identified on the Warranty Validation Letter.

Any and all incidental or consequential damages are expressly excluded from this warranty. Some jurisdictions do not allow the exclusion of incidental or consequential damages for personal injury, so the above limitations may not apply to you for certain damages. This warranty gives you specific legal rights, and you may also have other rights, which vary from jurisdiction to jurisdiction. No person or representative is authorized to make any warranty or assume any liability not strictly in accordance with the aforementioned.

Inquiries regarding warranty matters should be addressed to:

Desert Aire Corp
c/o Service Manager
N120 W18485 Freistadt Road
Germantown, WI 53022
USA
PH: +1-262-946-7400
TOLL FREE (USA & CAN): (800) 443-5276
FAX: +1-262-946-7401
E-MAIL: service@desert-aire.com

Additional copies of this manual can be purchased for a nominal fee from Desert Aire. Desert Aire also posts the most current revision of our I/O Manuals on our website. For a digital copy of the I/O Manual for your unit revision, please submit request to the contact information listed above.

Declaration of Conformity to European Union Directives



Desert Aire LLC
N120 W18485 Freistadt Rd,
Germantown, Wisconsin,
53022, USA

Declares, under its sole responsibility, that the devices listed below:

Expert Aire models LW03 through LW15

(for manufacturing number and manufacturing year refer to nameplate)

Are in accordance with the requirements of the following Directive(s):

DIRECTIVE 2006/42/EC (Machinery Directive)

DIRECTIVE 2014/30/EU (EMC)

and the following harmonized standards have been referenced or applied:

EN 60335-1:2012+A13:2017 Household and similar electrical appliances – Safety – Part 1:
General Requirements

EN 60335-2-40:2003+A13:2012 Household and similar electrical appliances – Safety – Part 2-40:
Particular Requirements for Electrical Heat Pumps, Air-Conditioners and Dehumidifiers.

EN 61000-6-1: Electromagnetic compatibility – Generic Standards – Immunity for residential, commercial
and light-industrial environments.

EN 61000-6-3: Electromagnetic compatibility – Generic Standards – Emission Standard for residential,
commercial, and light-industrial environments.

The technical documentation is held by and is available from:

Authorized Representative:

Martin Green
Managing Director
Eurolink Europe Compliance Limited
25 Herbert Place
Dublin D02 AY86
Republic of Ireland

We hereby certify that the machinery described above conforms with the essential health and safety requirements of Council Directive 2006/42/EC on the approximation of the laws of the Member States relating to the safety of machinery. The object of the declaration described above is in conformity with the relevant Union EMC harmonization legislation relating to the safety of machinery. The object of the declaration described above is in conformity with the relevant Union EMC harmonization legislation.



Model No: LW	Serial No: As noted on Nameplate	Year of Construction: 2022	
		Operating	Idle
The equivalent continuous A-weighted sound pressure level in the operator's position		75 dB (A)	63 dB (A)
The background sound pressure levels, if the correction factor is required;		62 dB (A):	62 dB (A)
The peak C-weighted instantaneous sound pressure level in the operator's position		78 dB (C)	66 dB (C)
Sound power emitted where the equivalent continuous A-weighted SPL exceeds 80 dB (A).		--- LWA	--- LWA
Ambient Correction Factor K3A calculated according to EN ISO 11204 Appendix A.		4 dB (A)	
Equipment used for the measurements:		Greenlee Model 93-20 S/N 31493	
Calibration Method:		ANSI/ASA S1.4 Type 2, IEC 651 Type 2	
Date / Place of the most recent calibration:		07 OCT 2021 Desert Aire Corporation N120 W18485 Freistadt Road Germantown, WI 53022 USA	
<p>The figures quoted are emission levels and are not necessarily safe working levels. While there is a correlation between the emission and exposure levels this cannot be used reliably to determine whether or not further precautions are required.</p> <p>Factors that influence the actual level of exposure of the workforce include characteristics of the work room, the other sources of noise, etc. such as the number of machines and other adjacent processes. Also, the permissible level of exposure can vary from country to country.</p> <p>This information, however, will enable the user of the machine to make a better evaluation of the hazard and risk.</p>			
	Desert Aire N120 W18485 Freistadt Road Germantown, WI 53022 USA		

TABLE OF CONTENTS





1.	ISO Safety Symbols	9
	1.1 ISO Safety Symbols - Defined	10
2.	Installation	11
	2.1 Introduction	11
	2.1 Intended Use of Equipment	12
	2.2 Technical Assistance	12
3.	Equipment Safety	13
	3.1 Improper Use & Forseeable Misuse	13
	3.1.1 Equipment Operation	13
4.	LW Controller Details	14
	4.1 Menu Overview and General Instructions	14
	4.2 Zone Setpoints	16
	4.3 Main Menu	18
	4.3.1 Unit Status	19
	4.3.2 EXV Status	19
	4.3.3 Occupancy Schedule	20
	4.3.3.1 Time Settings	21
	4.3.3.2 Daily Events	21
	4.3.3.3 Vacation Periods	22
	4.3.3.4 Special Days	23
	4.3.3.5 Temporary Occupancy	23
	4.3.4 Service Menu	24
	4.3.4.1 Commissioning	24
	4.3.4.1.1 Configuration - Blower Setup	25
	4.3.4.1.2 Configuration - Condenser Setup	25
	4.3.4.1.3 Configuration - Zone Sensor Select	27
	4.3.4.1.4 Configuration - Zone Setpoints Select	28
	4.3.4.1.5 Network Config	29
	4.3.4.1.6 Airflow Setup	31
	4.3.4.1.7 Commissioning Tests	33
	4.3.4.1.8 Motor Phasing	34
	4.3.4.1.9 BMS Setup	35
	4.3.4.2 Tuning - Dead Bands	37
	4.3.4.2.1 Tuning - Differentials	38
	4.3.4.2.2 Tuning - Air Heating	39
	4.3.4.2.3 Air Heating	39
	4.3.4.3 I/O Status	40
	4.3.4.3.1 Digital Inputs (Binary)	40
	4.3.4.3.2 Analog Inputs	41

4.3.4.3.3	Digital Outputs (Binary)	42
4.3.4.3.4	Analog Outputs	44
4.3.4.4	Sensor Offsets	45
4.3.4.5	Diagnostics	46
4.3.4.6	Memory Options	47
4.3.4.7	Clear Overrides	48
4.3.5	Unit Revision	49
4.3.6	DriCure Setup	49
5.	Alarm Menu	53
5.1	Too many mem writings or Retain mem write error	54
5.2	Low Suction Pr.	54
5.3	Discharge Pr.	54
5.4	Compressor Overload	54
5.5	Modbus Sensor Fault	55
5.6	Blower Overload	55
5.7	Smoke Alarm	55
5.8	c.pCOe Comm Fault	55
5.9	c.pCOe Cnfg Fault	55
5.10	Alarm Log	55
6.	Hardware Details	57
6.1	Programmable Controller	57
6.2	Suction Pressure Transducer	57
6.3	Discharge Pressure Transducer	57
6.4	Suction Line, Liquid & DHU Temperature Sensor	58
6.5	Zone Air Temperature and Relative Humidity Sensor	58
6.6	Reheat Condenser and Evaporator Bypass Differential Air Pressure Sensors	58
7.	Appendix	59
7.1	Internal Web Page	59

1 ISO Safety Symbols




Read and understand safety precautions prior to installation and operation.

Improper installation and operation due to negligence of instructions may result in significant property damage, severe injury, and or death. The symbol graphics used within this manual are classified by the following general appearance shown below.

	Mandatory action required where ignoring mandatory action can result in property damage, significant injury, and or death.
	General Hazard warning where if the corresponding precautions are not taken it could result in significant property damage, severe injury and or death.
	Prohibited Action. You must never perform the action shown or described.
	Important additional information and advice for user.

INSTALLATION AND SERVICE MANUAL

1.1 ISO Safety Symbols - Defined

	<p>Before start-up, and operation, read these instructions carefully to ensure correct use. Use this manual to safely operate the equipment. They contain safety instructions that must be complied with as well as information required for optimal performance of the equipment. Failure to follow instructions can result in significant property damage, severe injury and or death.</p>
	<p>Never operate the equipment with doors or covers removed. Access to hazardous voltage and moving parts can result in significant property damage, severe injury, and or death.</p>
	<p>Warning, equipment contains hazardous voltage and live electrical parts. Coming in to contact with these parts can result in severe injury, and or death. Take the necessary precautions to avoid contact with live parts.</p>

2. Installation

2.1 Introduction

This operation manual addresses persons entrusted with operating the equipment. Any tasks associated with Service, Installation, or Maintenance are outside the scope of these instructions.

The CM3540 controller is designed for precise monitoring and control of air temperature and relative humidity (RH) within a conditioned environment.

The CM3540 control system is easy to operate. The controller itself is installed in the electrical cabinet of the dehumidifier and features either an internal display terminal (IDT) or a remote display terminal (RDT). This display allows viewing and adjustment of the unit's sensors and setpoints. It also indicates the operating status of major components inside the dehumidifier. In addition, the controller has the ability to control auxiliary equipment such as a customer supplied exhaust blower, outdoor air damper, and/or auxiliary heating devices for optimum energy efficiency.

Most sensors and devices have been factory-installed and wired inside the dehumidifier. In most cases, only connection to electrical power, remote condenser, Zone Temperature/RH Sensor, and Surface Temperature sensors may be required. Details on these connections can be found in the Installation and Service Manual. Connection to the facilities computer network or building management system may also be required.

The CM3540 controller features optional building automation access. This includes options for network communication abilities such as BACnet IP, BACnet MS/TP, ModBus RTU, and ModBus IP.

The control system also includes a web page which allows access to a virtual display terminal. This can be accessed from any device on the computer network. Simply browse to the IP address assigned to the dehumidifier and enter the appropriate credentials [user: Desert-Aire, password: 18485], and select the DISPLAY tab. The log files are also available on this web page.

Keep this operation manual together with the equipment for continued use. It must be ensured that all persons that are to operate the equipment can refer to these instructions at any time. They must be passed on to all successive owners, users, and final customers.

If these instructions are damaged or lost during the lifecycle of the equipment, a replacement can be ordered from Desert Aire by calling our Service Number +1-262-946-7400, or by visiting our website www.desert-aire.com.

2.1 Intended Use of Equipment

Desert Aire's CM3540 microprocessor controller is a powerful, flexible controller with many useful features including:

- Display of room air temperature, relative humidity and refrigerant pressures.
- Display of equipment operating status such as dehumidification and cooling.
- Display of alarms for abnormal conditions such as sensor failures or tripped safety controls.
- An optional seven-day occupancy timer which can control outdoor air dampers (if used) to bring in fresh air when the dehumidifier is in an occupied state.
- A convenient, easy-to-understand display interface which allows the operator to view and change set points and time schedules.

The scope of these instructions cover the screen layout, and keypad functions to control and operate the equipment in a proper safe manner.

2.2 Technical Assistance



Desert Aire has a service team dedicated to providing technical assistance for our equipment throughout its lifecycle. This ranges from the commissioning of units, troubleshooting unit failures, sending replacement components, and diagnosing equipment performance.

Technical Assistance and replacement can provided, and replacement parts can be ordered or specified through the Desert Aire website: <https://www.desert-aire.com/dehumidifier-service> or by calling the service number: +1-262-946-7400 weekdays from 08:00 to 17:00.

3. Equipment Safety

Desert Aire inspects and tests each climate control unit before it leaves the factory so that you receive a quality and safe piece of equipment. The equipment and its accessories must be operated in compliance with these instructions to ensure continued safe operation.



3.1 Improper Use & Forseeable Misuse

	<p><u>Do not</u> use the equipment as a resting surface, climbing aid, or storage device.</p> <p><u>Do not</u> allow children to play with or around the equipment. Children near the equipment must be supervised at all times.</p> <p><u>Do not</u> attempt any tampering with the factory set controls, or operation outside the original design conditions.</p> <p><u>Do not</u> rely on only these instructions for any Installation, Service, or Maintenance tasks on the equipment. Contact Desert Aire Service for assistance at: +1-262-946-7400 weekdays from 08:00 to 17:00.</p>
	<p><u>Do not attempt any electrical work if you are not a qualified/ licensed electrician or technician.</u></p> <p><u>Do not</u> open any doors or covers, especially doors or covers protecting live hazardous voltage.</p>

This appliance can be used by children aged 8 years and above, as well as persons with reduced physical, sensory, or mental capabilities, or lack of experience or knowledge, if they have been given supervision or instruction concerning use of the appliance. Cleaning and user maintenance shall not be done or attempted by children or untrained personnel without proper supervision.

Desert Aire is not liable for any personal harm or material damage arising from non-intended use.

3.1.1 Equipment Operation

	<p><u>DO NOT</u> operate equipment with doors or covers off! Protection class of equipment with doors and covers off is IP00! It is possible to touch Hazardous Live Voltage and Hazardous Rotating Fan Blades with doors and covers removed. Operation without doors and covers can result in serious injury or death.</p>
	<p>Any faults detected in the electrical system must be corrected immediately. If these faults are not corrected, the equipment is potentially very dangerous and must not be operated. Opening or removing any door/cover can potentially expose hazardous live voltage. Read the installation and service manual before opening or removing any door/cover.</p>

4. LW Controller Details (Figure 1)

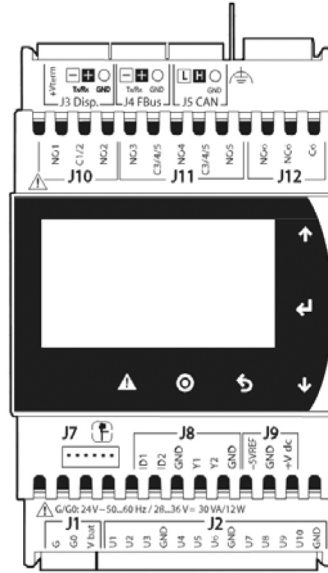


Figure 1

4.1 Menu Overview and General Instructions (Figures 2 and 3)

Your Desert Aire CM3540 Controller is pre-programmed and configured at the factory for use in the application specified. The internal display (IDT – Figure 1) allows the operator to monitor the operation and adjust the set points of your Desert Aire LW dehumidifier.

The IDT has an LCD screen and six keys. The keys from left to right are:







-  - ALARM Key
-  - PROGRAM (Prg) Key
-  - ESCAPE (Esc) Key
-  - DOWN Key
-  - UP Key
-  - ENTER Key

Figure 2

The Home Screen (Figure 3, below) displays the Desert Aire logo and shows the dehumidifier status, zone temperature and relative humidity, it also shows the operational state of the fan, compressor and air heating. The unit type and tonnage is displayed in the upper right of the screen. Below this line, “Esc → Menu” indicates that if the **Esc** key is pressed, the Main Menu will be displayed. Pressing **Esc** on any other screen will take you back one screen.

The “Prg → Stpt” indicates that if the **Prg** key is pressed, the set points can be changed.
The “↑ ↓ → Help” indicates that if the **UP** or **DOWN** keys are pressed, the help screens will be shown. The **UP** or **DOWN** keys will now scroll through the help screens.



Figure 3

Menu screens allow the user to select from a series of actions. The action that is capitalized on the screen is selected by pressing the **ENTER** key. To cycle through the selections on a menu screen, use the **UP** or **DOWN** keys.

If set points or selections can be altered on a screen, the **ENTER** key will cycle through those items. Once the cursor is over an item, the **UP** and **DOWN** arrow keys will modify the setting. Numeric values require that the **ENTER** key be pressed to accept the value. An “on” or “off” selection will be altered as soon as the **UP** or **DOWN** keys are pressed. When an alarm is triggered, the red LED behind the **ALARM** key will light, and remain on until the alarm is reset.

To view the alarms from any menu simply press the **ALARM** key. If no alarm is active, the display will state NO ALARMS. If an alarm is present, it will be displayed along with the date and time it was triggered. The bottom two lines will display two data points recorded when the alarm was triggered.

To reset the alarm, use the **DOWN** key until the reset instructions are shown. Pressing the **ALARM** key for three seconds will reset all active alarms. See Section 3 for further alarm and alarm data logging information.

Screens which display a small up arrow in the upper right and a small down arrow in the lower right are part of a series of screens which can be accessed by pressing either the **UP** or **DOWN** arrow keys.

If the operator has not pressed a key for an hour, the terminal display will return to the Home Screen.

4.2 Zone Setpoints (Figure 4)

Pressing the **Prg** key from the Home Screen displays the ACTIVE SETPOINTS (Figure 4). This menu displays the current temperature and humidity setpoints specific to the unit. The setpoints displayed are from one of the following options; the standard setpoints adjustable in the unit, the setpoints from a Lead Unit, or the setpoints from a BMS network. If the unit is a DriCure unit, the setpoints may also come from the DriCure schedule.

Pressing the **DOWN** key will display one of the screens shown in Figures 5,6,7.

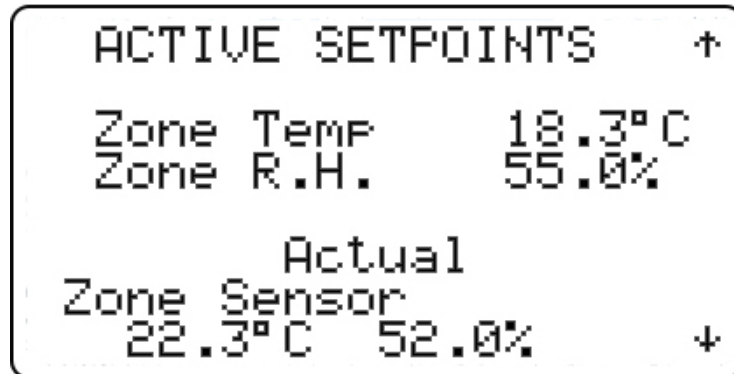


Figure 4

If the unit is set up to use the standard setpoints particular to the unit pressing the **DOWN** key will display the screen in Figure 5. On this screen the Zone Temperature and Humidity Setpoints are adjustable. If Setback has been enabled, the Unoccupied Zone Temperature and Humidity Setpoints are also adjustable on this screen.

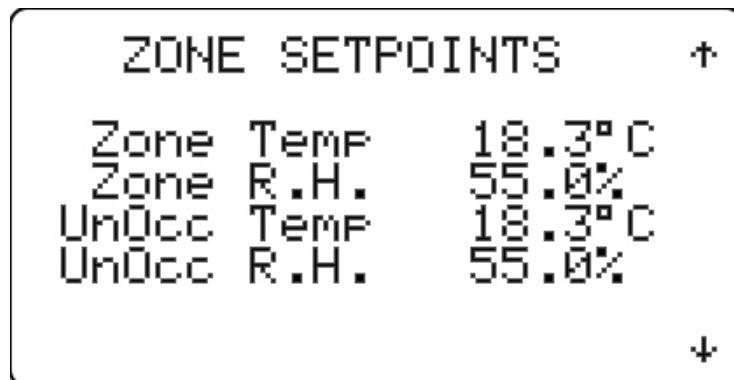


Figure 5

If the unit is set up to use the Lead Unit's setpoints, pressing the **DOWN** key will display the screen in Figure 6. Here the Lead Unit's setpoints are displayed, and can only be changed from the Lead Unit.

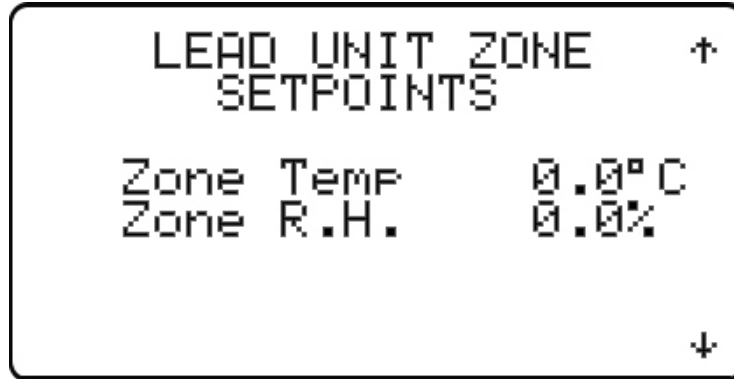


Figure 6

If the unit is set up to use setpoints sent by a BMS system, pressing the **DOWN** key will display the screen in Figure 7. Here the Network Zone Temperature and Humidity Setpoints are adjustable from this screen. If Setback has been enabled, the Unoccupied Zone Temperature and Humidity Setpoints are adjustable from this screen. These setpoints will also be adjustable through Modbus or BACnet protocol depending on the BMS option selected.

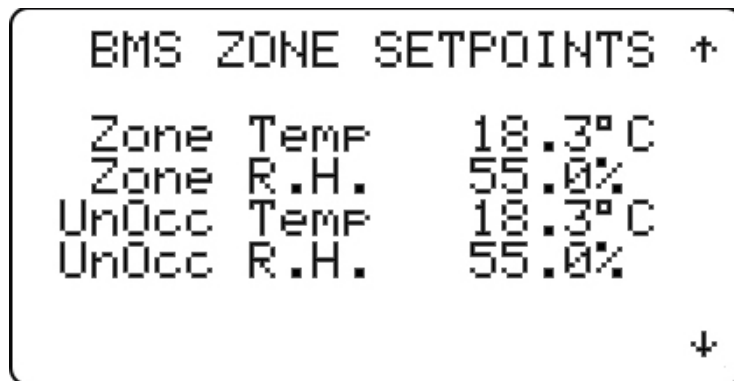


Figure 7

If the unit is a DriCure unit and has the DriCure Schedule set up, the **DOWN** key will have no function. Instead the ACTIVE SETPOINTS screen will look like the screen in Figure 8. The Zone Temperature and Humidity Setpoints will be adjustable in the DriCure Setpoints menus, and displayed on this screen. The screen will either say "Schedule Active", or display which period the schedule is on. Press the **Esc** key to return to the MAIN MENU.

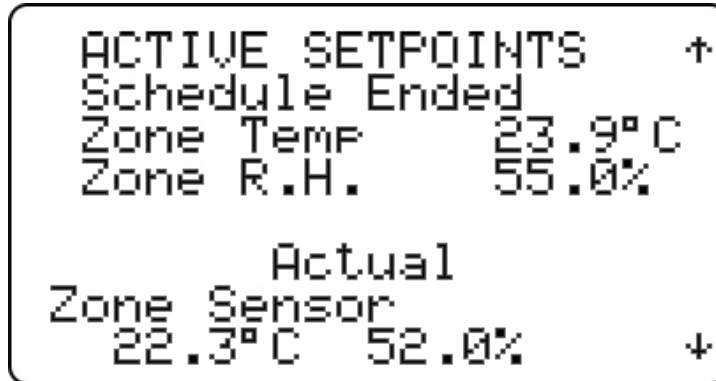


Figure 8

4.3 Main Menu (Figure 9)

Pressing the **Esc** key from the Home Screen displays the MAIN MENU (Figure 9). This menu allows the operator to view the Unit Status screens, set the Occupancy Schedule, enter the Service Menu, and view the Unit Revision.

To return to the Home Screen, press the **Esc** key.

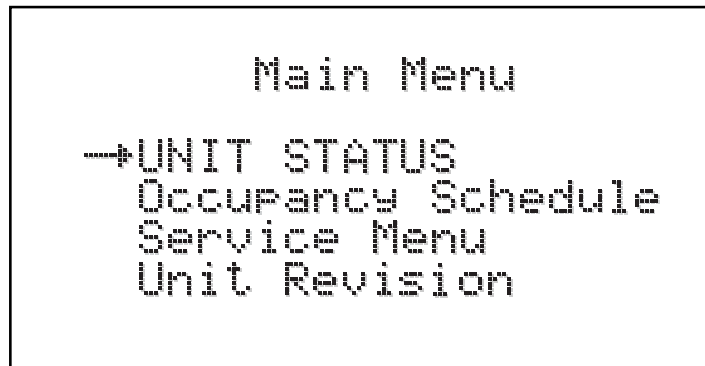


Figure 9

If the unit is a DriCure the MAIN MENU will look like Figure 10. The same options are available as Figure 9, with the addition of the DriCure Scheduler at the bottom.

To return to the Home Screen, press the **Esc** key.

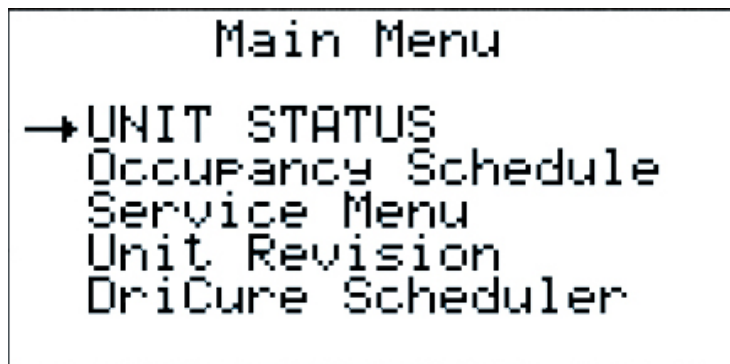


Figure 10

4.3.1 Unit Status (Figure 11)

Selecting Unit Status from the MAIN MENU displays a text explanation of the unit. On the first line of this screen if a remote condenser is available, the screen displays “RC Available”. If no remote condenser is available, the screen displays “RC Unavailable”. The Occupied state (either Occupied or Un-Occupied) is shown on the second line along with the state of the blower. The Unit Status will show one of the following states on the third line.

- Zone Satisfied
- Heating Req
- Cooling Req
- Dehum Req
- Dehum/Heat
- Dehum/Cool
- Low Airflow
- Defrost Cycle
- Low R/A Temp
- ExV Init
- Surface Dehum
- Factory Test

The fourth line will display if the compressor is on or off. The fifth line will indicate if the compressor is waiting for its no-short cycling timer to time out and the time left before a restart is available. The very bottom of this screen is the current time and date set in the unit controller.

To return to the MAIN MENU, press the **Esc** key.

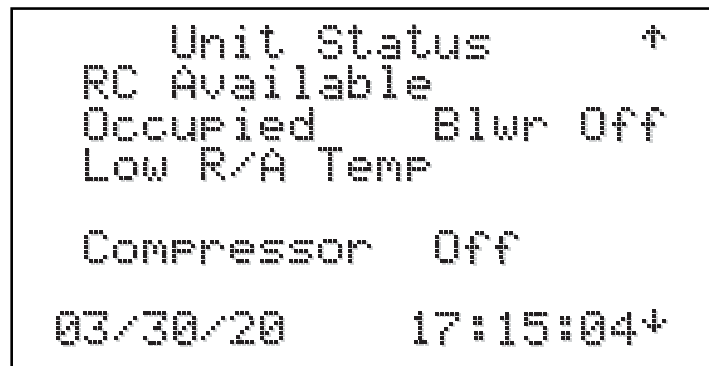


Figure 11

4.3.2 EXV Status (Figure 12)

Pressing the **DOWN** key from the UNIT STATUS screen displays a text/numerical explanation of the unit’s refrigeration system. On the first line of this screen the Superheat and Sub-Cooling values are displayed. In the lower right corner of the screen the following values are displayed from top to bottom; Suction Pressure, Suction Temperature and Evaporation Temperature. In the lower left corner of

the screen the following is displayed from top to bottom; Valve Steps, Valve % Open, Valve Status and Valve Emergency Controls Status.

The Valve Status can be one of the three values:

- “---” – Value is not initialized (Unit Size not set)
- “On” – Value is operating
- “Off” – Value is Standby mode

The Valve Controls Status can be one of the four values:

- “Low SH” – Low Superheat Controls
- “LOP” – Low Operating Pressure Controls
- “MOP” – Maximum Operating Pressure Controls
- “Hi TCond” – High Condensing Temperature Controls

To return to the MAIN MENU, press the **Esc** key.

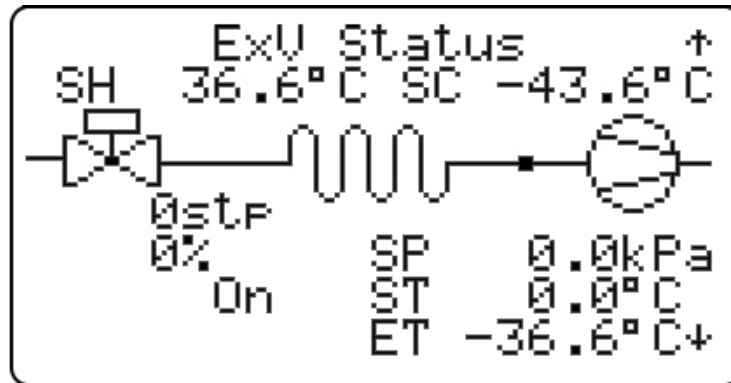


Figure 12

4.3.3 Occupancy Schedule (Figure 13)

Select the OCCUPANCY SCHEDULE from the MAIN MENU to enable a schedule to place the dehumidifier in the occupied mode (see Figure 13). To enable a schedule select Yes, and press **ENTER**. The schedule will need to be set up before this will be enabled. Pressing the **Prg** key from this menu allows the date and time to be modified.

To return to the MAIN MENU, press the **Esc** key.

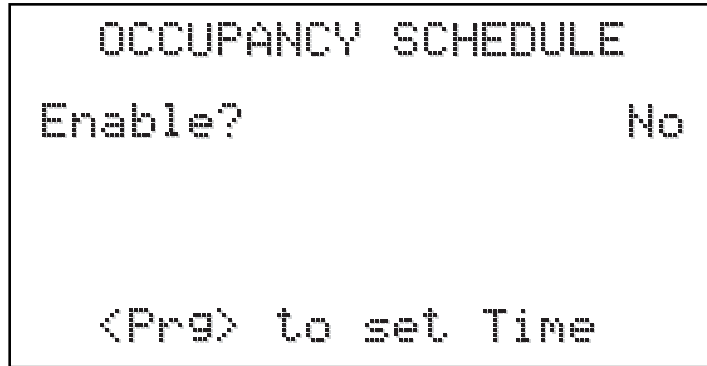


Figure 13

4.3.3.1 Time Settings (Figure 14)

This screen set the time, date and day of week. To modify these settings press the **ENTER** key until the cursor is over the appropriate item and use the arrow keys until the desired setting is shown. All times are set in the 24 hour format. Pressing the **ENTER** key will accept that value and step to the next item. At the bottom of this screen the time zone can be selected and set from listed options.

To return to the OCCUPANCY SCHEDULE, press the **Esc** key.

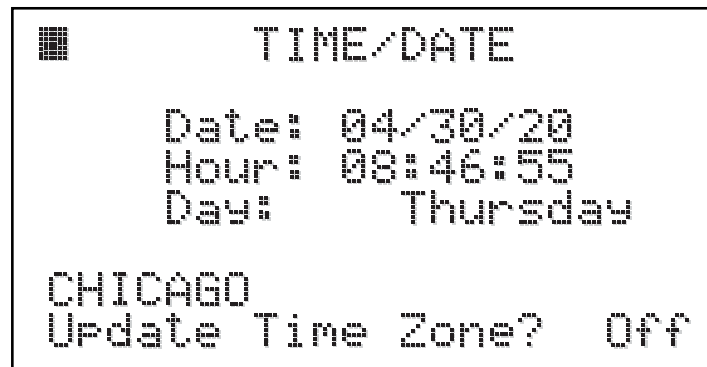


Figure 14

4.3.3.2 Daily Events (Figure 15)

This is where each day's events are set. Four settings are possible, which will allow two separate occupancy periods. Check the first box by pressing the **UP** key when the cursor is over the check box. Set the time in 24 hour format and then select 'Occupied' or 'Un-Occupied'. Save this date at the bottom of this screen by selecting 'Yes' and pressing **ENTER**.

Once a day is entered these settings can be copied on any other day by selecting a day to copy, setting the Copy To: the appropriate day, and then selecting Ok? to 'Yes'. Modify these days as appropriate.

To return to the OCCUPANCY SCHEDULE MENU, press the **Esc** key.

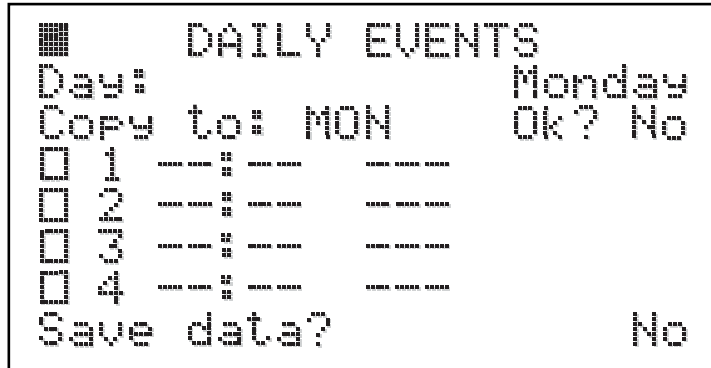


Figure 15

4.3.3.3 Vacation Periods (Figure 16)

The Vacation Periods will allow three sets of vacation to keep the dehumidifier 'Occupied' or 'Un-Occupied'. Set the range of days that this will occur, the Start Date and the End Date for that holiday.

To return to the OCCUPANCY SCHEDULE MENU, press the **Esc** key.

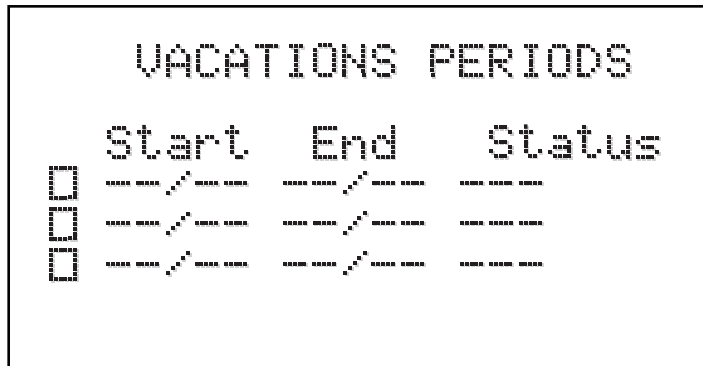


Figure 16

4.3.3.4 Special Days (Figure 17)

Also available are 6 special days where the full day can be set for either 'Occupied' or 'Un-Occupied'.

To return to the OCCUPANCY SCHEDULE MENU, press the **Esc** key.



Figure 17

4.3.3.5 Temporary Occupancy (Figure 18)

This screen allows the unit to be manually set to Occupied for a preset amount of time. Press the **ENTER** key and enter the hours you would like the unit to be temporarily in the occupied mode. Press the **ENTER** key again and enter the minutes you would like the unit to be in the temporarily occupied mode. Press the **ENTER** key again and the cursor will begin blinking over the 'Set Override' message. Press the **UP** and **ENTER** keys to set this override to 'On'. The dehumidifier will now be 'Occupied' for this period of time. When the override expires, the screen will again display Set Override, and the dehumidifier will return to its normal state.

To return to the OCCUPANCY SCHEDULE MENU, press the **Esc** key.

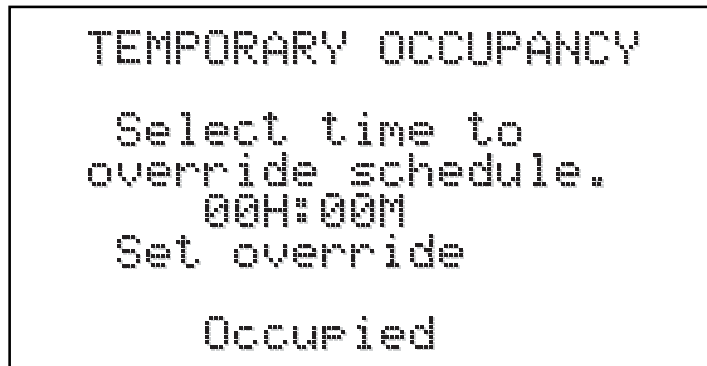


Figure 18

4.3.4 Service Menu (Figures 19 and 20)

Selecting the SERVICE MENU will display the Login Screen (Figure 19). Enter the service password, 1234 and press **ENTER**.

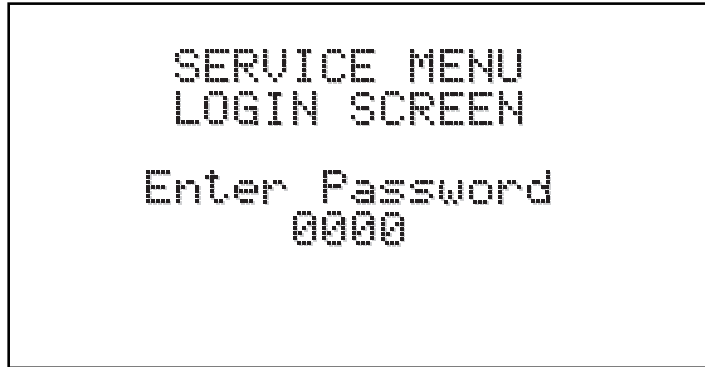


Figure 19

The SERVICE MENU gives access to Commissioning, Tuning, I/O Status, Sensor Offsets, Diagnostics, Memory Options and Clear Overrides (Figure 20).

To return to the MAIN MENU, press the **Esc** key.

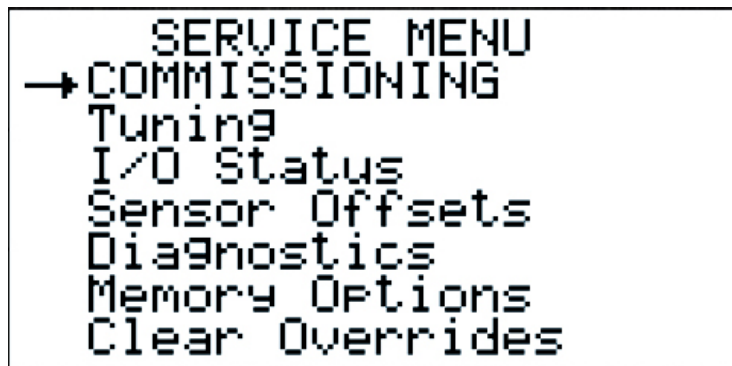


Figure 20

The user remains logged in for 30 minutes after the password is entered. During this time the Login screen reads “Logged In For” and the seconds left before the password expires. To login without entering the password while this is shown, Press the **Prg** key.

4.3.4.1 Commissioning (Figure 21)

Selecting COMMISSIONING from the Service Menu displays the COMMISSIONING MENU (Figure 21). This menu allows the operator to select the Configuration, Network Config, Airflow Setup, Current Conditions, Commissioning Tests, Motor Phasing and BMS Setup.

To return to the Service Menu, press the **Esc** key.

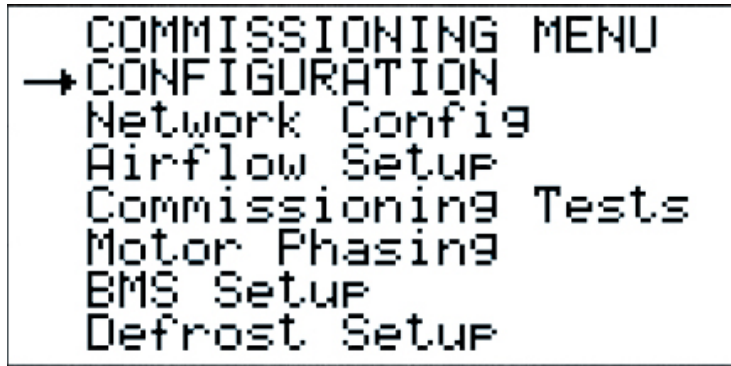


Figure 21

4.3.4.1.1 Configuration - Blower Setup (Figure 22)

Selecting the CONFIGURATION from the Commissioning Menu displays the BLOWER SETUP screen (Figure 21). The blower can be set for either CONTINUOUS or AUTOMATIC. Only set the blower to automatic if a wall mount sensor is used. Press the **DOWN** key for the next Configuration screen.

To return to the Service Menu, press the **Esc** key.

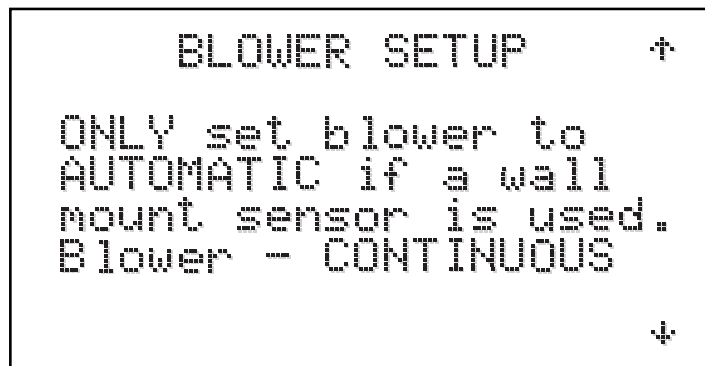


Figure 22

4.3.4.1.2 Configuration - Condenser Setup (Figures 23 and 24)

Pressing the **DOWN** key will now display the CONDENSER SETUP screen (Figure 23 or 24). If the unit has no provisions for a cooling condenser, the condenser screen will appear as Figure 23 stating 'No RC Installed'. In this case the compressor will only be allowed to run if dehumidification is required and cooling is not required. To allow the compressor to run whenever dehumidification is required, press the **ENTER** key, select 'Restrict Dehum' and change this to 'Allow Dehum'. Please note that in this case, overheating the space may occur or cause safety devices to trip. If this occurs, contact Desert Aire's Service Department at +1-262-946-7400.

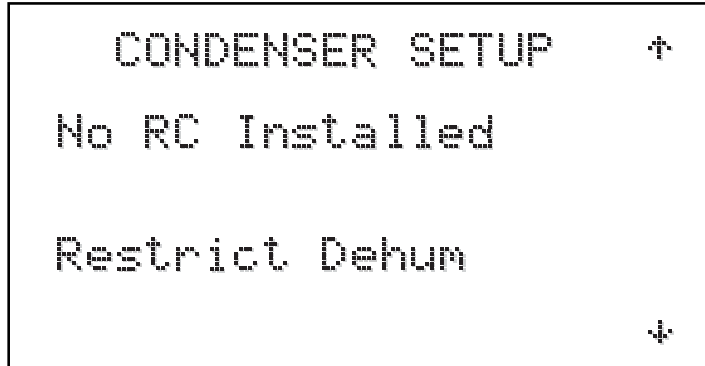


Figure 23

In the case where the dehumidifier has provisions for a remote condenser, but the condenser is not yet connected, the Condenser Setup screen will appear as Figure 24. After the Remote Condenser has been attached and is ready for use, select the 'Disabled' setting and modify it to 'Enabled'. Doing this will cause the 'Restrict/Allow Dehum' option to disappear.

To return to the Service Menu, press the **Esc** key.

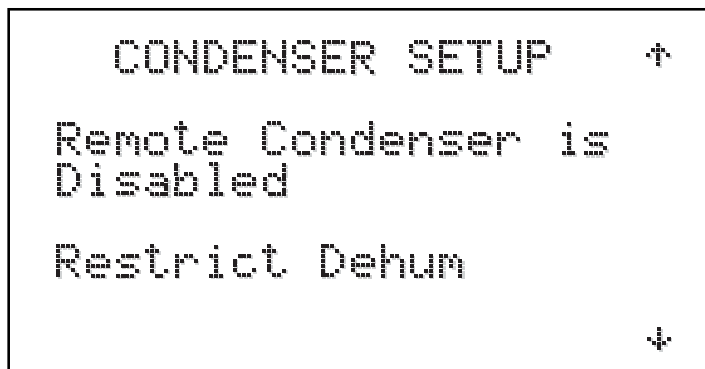


Figure 24

4.3.4.1.3 Configuration Zone Sensor Select

Pressing the **DOWN** key will now display the ZONE SENSOR SELECT screen (Figure 25). This screen allows the user to select where the unit will receive its Zone Sensor data. If a zone sensor is connected directly to the unit, all selections should be left unchecked. If the unit will share a sensor with a Lead Unit, the “Use Lead Unit Sensor” box must be checked. If communication fails between Lead & Lag units, a message at the bottom will state “Lead Unit MB FLT”. If the unit will receive zone sensor data from a BMS system the “Use BMS Sensor” box must be checked.

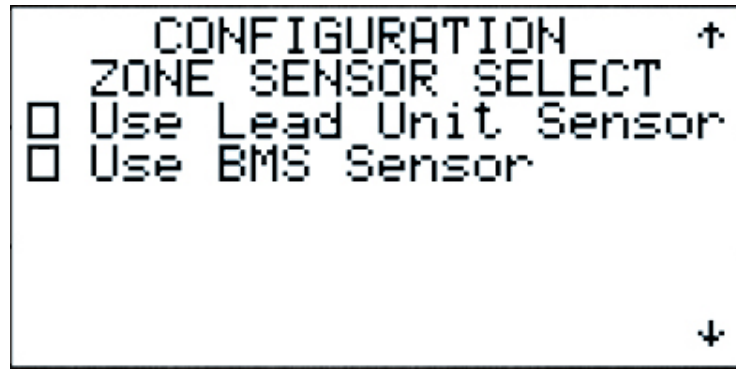


Figure 25

If BMS sensor is selected, an option to enable a BMS Heartbeat and set a Heartbeat Delay will be displayed as shown in Figure 26. The Heartbeat is a BMS Boolean point that will need to be toggled On & Off within the Heartbeat Delay time to verify communication is occurring. If there is a fault with the heartbeat, a message at the bottom of the screen will state “BMS Comm. FLT”. The heartbeat function is optional, but recommended. If the heartbeat is not selected and zone sensor data is no longer sent to the unit, the last available sensor data will be used. This can result in runaway temperatures in the zone. If the heartbeat is selected and not actively sent, the unit will default to the locally connected zone sensor (if equipped).

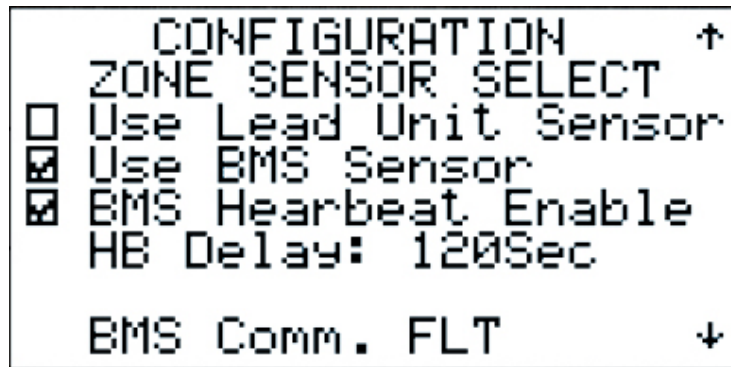


Figure 26

4.3.4.1.4 Configuration Zone Setpoint Select

Pressing the **DOWN** key will now display the SETPOINT SELECT screen (Figure 27). This screen allows the user to select where the unit will receive its Zone Temperature and Humidity Setpoints. If the unit will use the setpoints on the Zone Setpoints screen from the local display, all selections should be left unchecked.

If the unit will receive its setpoints from a Lead Unit, the “Use Lead Unit Stpts” box must be checked. The unit will then show the setpoints of the Lead unit. Any adjustments to the setpoints must be done from the Lead unit.

If the unit will use setpoints sent from a BMS communication system, the “Use BMS Stpts” box must be checked. The unit will then receive setpoints from either the BACnet or Modbus protocols.

If the unit is a DriCure unit, the display will have a DriCure Schedule option. If the “DriCure Schedule” option is selected the program will allow for several sequential setpoints for programmed durations to be set within the DriCure Schedule screens. See DriCure Schedule section for details on setting setpoints and durations.

Towards the bottom of the screen a checkbox for Allow Setback is adjustable. If the Allow Setback box is checked the unit will use both Occupied and Unoccupied Zone setpoints.

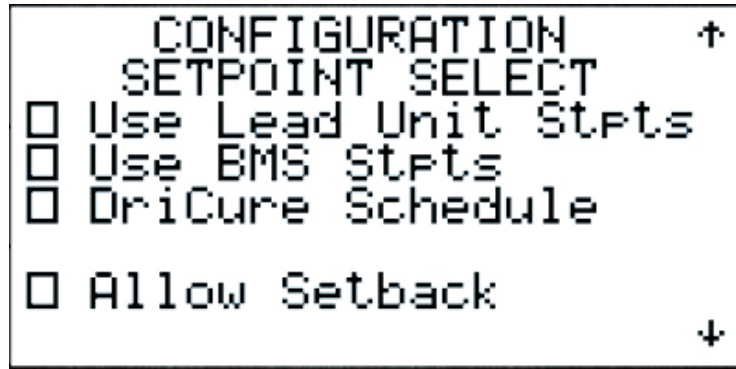


Figure 27

4.3.4.1.5 Network Config

An IP address must be used if the unit will be connected to AireGuard, Modbus IP, BACnet IP, or as part of a Lead-Lag setup.

Selecting NETWORK CONFIG from the Commissioning Menu displays the NETWORK CONFIG screen shown in Figure 28. From this screen, the IP address of the unit can be set to either DHCP On or to a static IP address.

The settings here should be coordinated with the building controls contractor.

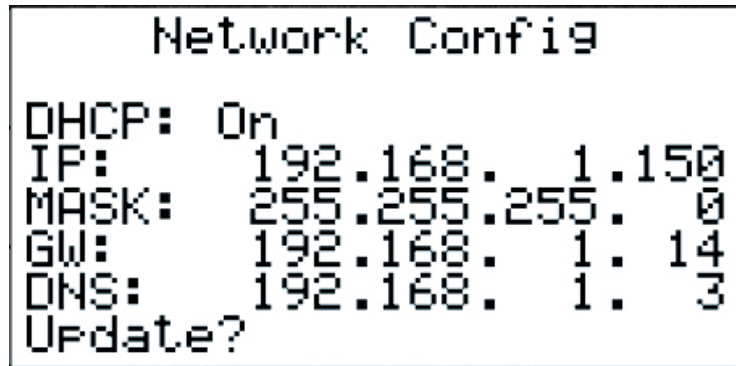


Figure 28

Pressing the **DOWN** key at the top of the Network Config screen will show the HOSTNAME screen. The HOSTNAME screen allows the user to adjust the unit's hostname (defaulted to "dhu1"). Each unit on a network should have a unique hostname. It is recommended that this hostname be the same as the unit tag or other unique identifier already associated with the specific unit.

The hostname appears at the top of the screen, and can be adjusted to any 8-character series of numbers or letters. (Note – Capital letters and special characters are excluded from the hostname). Once the hostname is adjusted to the desired value the “Set Hostname” box must be checked. After the checkbox clears, the “Get Hostname” box must be checked to verify that the controller has been set to the adjusted hostname. The current hostname of the unit will be displayed towards the bottom of the screen.

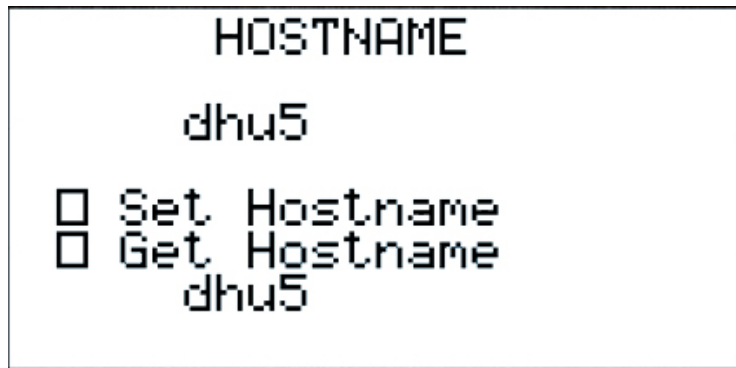


Figure 29

Pressing the **DOWN** key when at the top of the HOSTNAME screen will take you to the LEAD UNIT HOSTNAME screen. The LEAD UNIT HOSTNAME screens allows the user to enter the host name of the lead unit. If the current unit is a lead unit or will not have Lead-Lag operation, this screen is not applicable and should not be adjusted. The 8-character string at the top of the screen is adjustable and must be set to the Lead Unit hostname. Directly below is an indication of the lead unit hostname for this controller.

To return to the Commissioning Menu, press the **Esc** key.

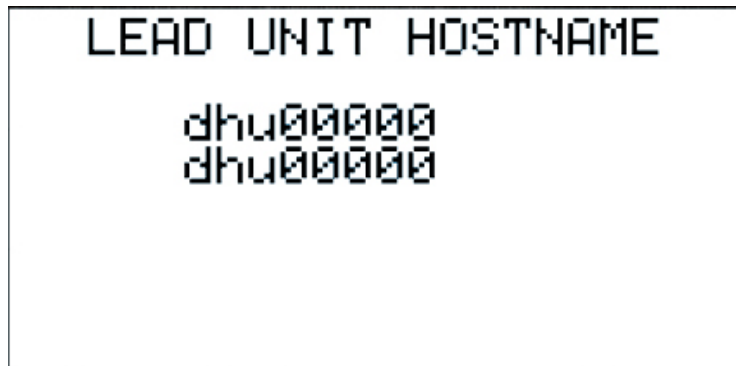


Figure 30

4.3.4.1.6 Airflow Setup (Figure 31)

Selecting the AIRFLOW SETUP from the Commissioning Menu will display either the screen shown in Figure 31 or Figure 32.

If the unit has a centrifugal housed blower, the screen will appear as Figure 31. The Standard CFM, Standard Differential Pressure, and Altitude are all adjustable towards the top half of the screen. Standard CFM is the target airflow rate of the unit. Standard DP is the differential pressure of the reheat coil when Standard CFM at sea level is achieved. These values are programmed at the factory for the specific model size.

The Altitude programmed and the actual Reheat DP measured are used to calculate the current CFM reading. The CFM reading can be used for air balancing. Although corrections to the Standard CFM and DP are possible at the time of air balancing, it is recommended that Desert Aire Service be consulted before adjustment.

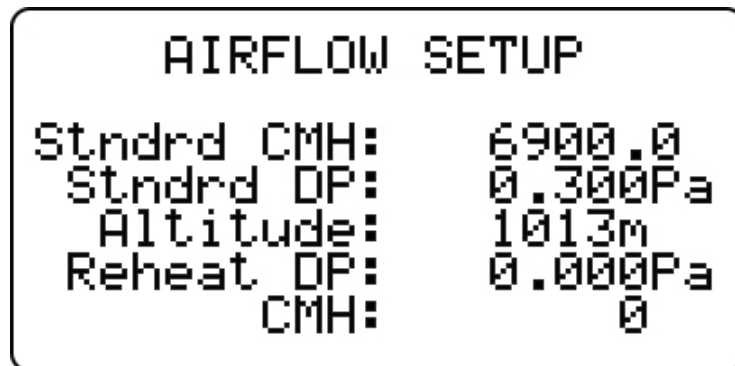


Figure 31

If the unit has a plenum fan, the screen will appear as Figure 32. From the Airflow Setup screen the K-Factor, Altitude, and Number of Fans are all adjustable towards the top half of the screen. Although corrections to the K-factor and number of fans are possible at the time of air balancing, it is recommended that Desert Aire Service be consulted before adjustment.

The Fan Differential Pressure and Calculated CFM are displayed towards the bottom of the screen.

To return to the Commissioning Menu, press the **Esc** key.

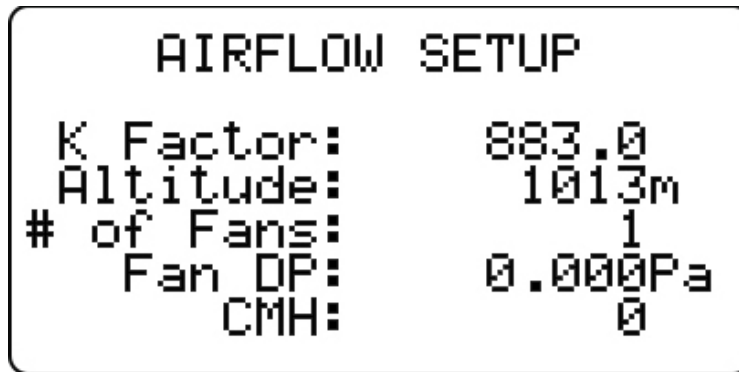


Figure 32

If the Outside Air option has been installed, press the **DOWN** key from the AIRFLOW SETUP screen to display the Outdoor Air Damper Setup screen shown in Figure 33. Here the Outdoor Air Damper Occupied and Un-Occupied positions can be set. The Manual override can be enabled here, as well as setting the Manual position. At the bottom of the screen the Outdoor Air Damper position is displayed.

To return to the Commissioning Menu, press the **Esc** key.

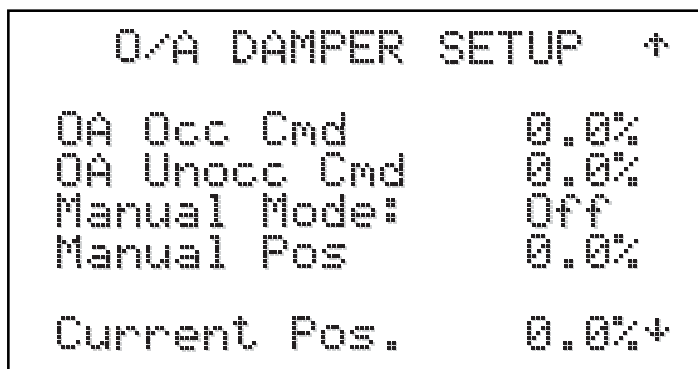


Figure 33

Pressing the **DOWN** key from the O/A DAMPER SETUP will display the EVAP DAMPER SETUP shown in Figure 34. The Evaporator Bypass Damper will modulate to hold a specific air differential pressure drop across the Evaporator coil. The Evaporator Differential Pressure Set Point is adjustable on this screen. Right below the adjustable set point is the actual differential pressure drop across the Evaporator Coil. The Manual Mode Enable and the Manual Position are adjustable towards the bottom of this screen. At the very bottom of the screen the Evaporator Bypass Damper Current Position is displayed.

To return to the Commissioning Menu, press the **Esc** key.

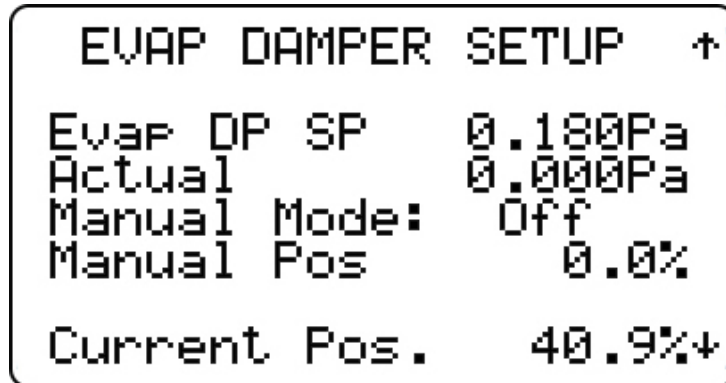


Figure 34

4.3.4.1.7 Commissioning Tests (Figures 35 - 37)

Selecting the COMMISSIONING TESTS from the Commissioning Menu displays the COMMISSIONING TEST screens. The Reheat and Remote or Cooling will have a separate test screen (Figures 35 and 36 respectively). Select the condenser to test and override it by setting the Override to 'On'. Insure that the superheat is stable before starting the test. Select 'Start Test' by pressing the **UP** key with the cursor over the 'Start Test' text. After 5 minutes, the average refrigeration data can be shown by pressing the **Prg** key. The average superheat as well as the high and low readings of superheat during this test are found by pressing the **UP** and **DOWN** key. Record this data on the startup form.

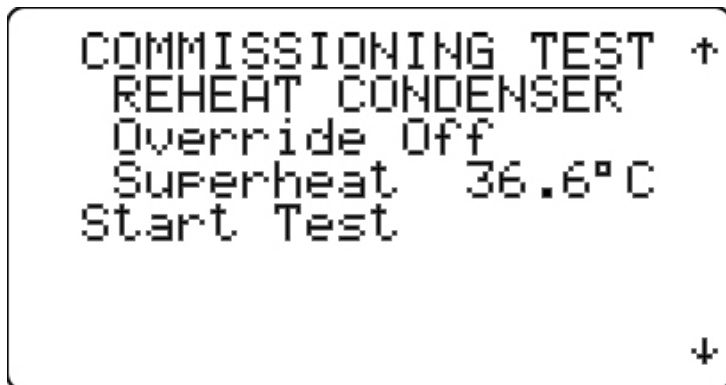


Figure 35

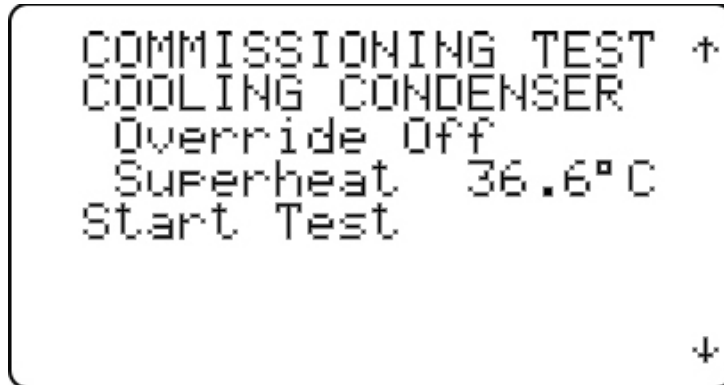


Figure 36

Pressing the **DOWN** key will cycle through the available condensers to test, and the last screen shown will be the Air Heating screen (Figure 37). This screen allows the air heat to be forced 'On' and a manual percentage to be forced. This allows for stable conditions for the amperage to be recorded on the startup form.

To return to the Commissioning Menu, press the **Esc** key.

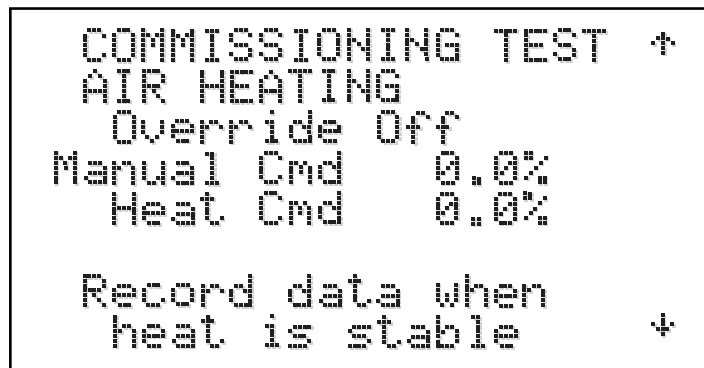


Figure 37

4.3.4.1.8 Motor Phasing (Figure 38)

Selecting the MOTOR PHASING from the Commissioning Menu displays the MOTOR PHASING screen (Figure 38). Turning the Blower 'On' will run the blower for 1 second to allow for the motor rotation to be checked. This is required for units connected to 3 phase electrical power. Turning the Compressor 'On' will run the compressor for 3 seconds. The discharge and suction pressure are shown on this screen for a check of current compressor rotation.

To return to the Commissioning Menu, press the **Esc** key.

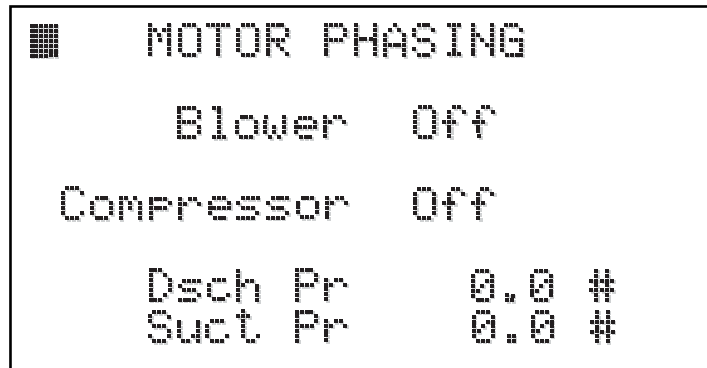


Figure 38

4.3.4.1.9 BMS Setup (Figures 39 - 43)

Selecting the BMS SETUP from the Commissioning Menu displays the PORT J3 SETUP screen (Figure 39). From this screen the J3 port can be set to drive a remote PGD display terminal, communicate via Modbus RTU, LON or BACnet MS/TP. The Ethernet port can be set to send data via Modbus TCP/IP or BACnet IP.

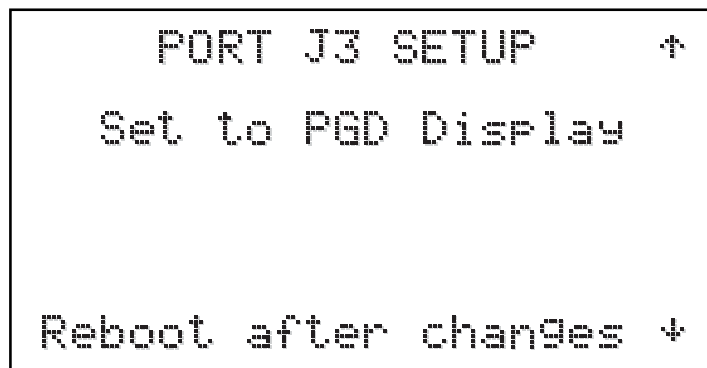


Figure 39

When the J3 port is set for Modbus RTU, pressing the **DOWN** key will display Figure 40. This screen will allow the address, baud rate and data parameters to be set. If J3 is set for BACnet MS/TP, pressing the **DOWN** key will display Figure 41. This screen will allow BACnet data to be used.

```
J3 MODBUS RTU SETUP ↑
Address      7
Baudrate    4800
8 Data Bits
Parity NONE
2 Stop Bits
Reboot after changes ↓
```

Figure 40

Pressing the **DOWN** key will also display the Ethernet protocol selection, Figure 42. Setting the Ethernet port for BACnet IP will allow the screen in Figure 41 to be displayed. This allows the Device ID and Port to be set. Pressing the **DOWN** key once more displays the Ethernet Network Configuration, Figure 42. The unit default is DHCP.

```
J3 BACNET MS/TP ↑
Station Add.  0
Baudrate     4800
Max Master   127
Device ID    0000
Reboot after changes ↓
```

Figure 41

Making any changes to the J3 or Ethernet ports will require a power cycle to have those changes take effect.

While BACnet can be selected for the J3 or Ethernet port, a license file will need to be loaded into the controller in order for BACnet communication to be allowed.

To return to the Commissioning Menu, press the **Esc** key.

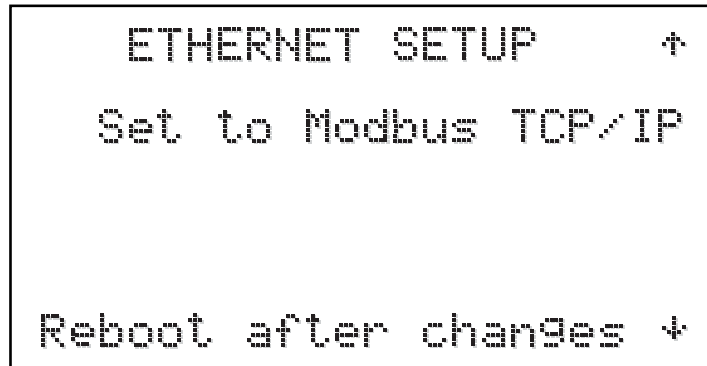


Figure 42



Figure 43

4.3.4.2 Tuning - Dead Bands (Figure 44)

Selecting TUNING from the SERVICE MENU displays the DEADBANDS screen, (Figure 44). The defaults settings for the deadbands can be modified on this screen. The Heating deadband value is subtracted from the Zone Temperature Setpoint from Section 2.2. This value is the heating set point that enables the aux heating output. It is also the heating set point for the Air Heating PID loop. The Cooling Deadband value is added to the Zone Temperature Setpoint. This value is the cooling set point. When the zone temperature exceeds this value, the refrigeration system is required to be used for zone cooling. The Dehum Deadband value is added to the Zone Relative Humidity Setpoint. This value is the dehumidification set point. When the zone relative humidity exceeds this value, the refrigeration system is required to be used for zone dehumidification.

To modify settings, press the **ENTER** key, and use the arrow keys until the desired value is shown. Press the **ENTER** key to accept the set point value.

Press the **DOWN** key for the next Tuning screen. To return to the Service Menu, press the **Esc** key.

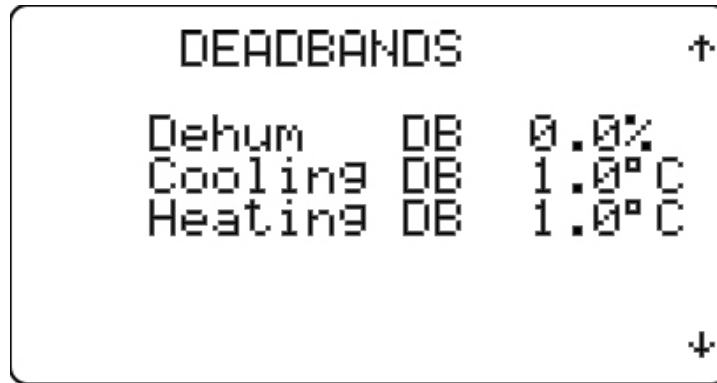


Figure 44

4.3.4.2.1 Tuning - Differentials (Figure 45)

Pressing the **DOWN** key will now display the DIFFERENTIALS screen (Figure 45). This screen shows the Cooling, Heating and Humidity Switch Differentials. This differential is the range between the making and breaking of the switch. The range of the Cooling and Heating Differential is -17.8°C to 12.3°C. The range of the Humidity Differential 0.0% to 9.9%.

To modify the differentials, press the **ENTER** key and use the arrow keys until the desired setting is shown. Press the **ENTER** key to accept the value.

Press the **DOWN** key for the next Tuning screen. To return to the Service Menu, press the **Esc** key.

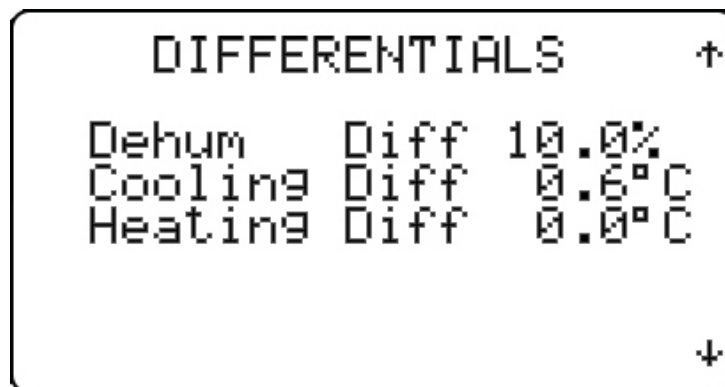


Figure 45

4.3.4.2.2 Tuning - Air Heating (Figure 46)

Pressing the **DOWN** key will now display the AIR HEATING screen (Figure 46). This screen shows the state of the air heat and the associated set points and temperatures. Press the **DOWN** key for the next Tuning screen.

To return to the Service Menu, press the **Esc** key.

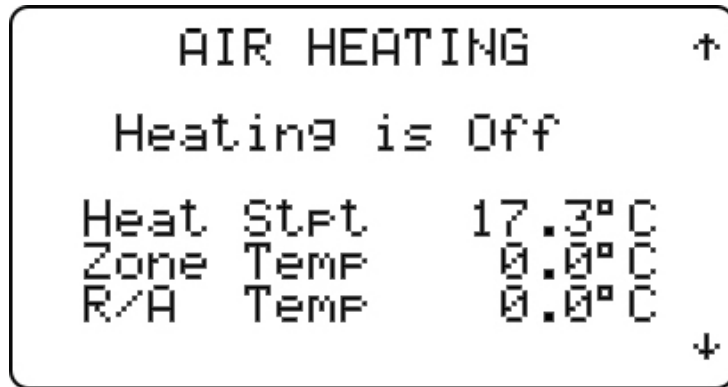


Figure 46

4.3.4.2.3 Air Heating (Figure 47)

Pressing the **DOWN** key will now display the settings of the Air Heating PID loop. These settings control the modulating heat signal. The Gain, Integral and Derivative terms can be set here as well as the percentage to disable the digital heat contact and the time required for this to occur.

To return to the Service Menu, press the **Esc** key.

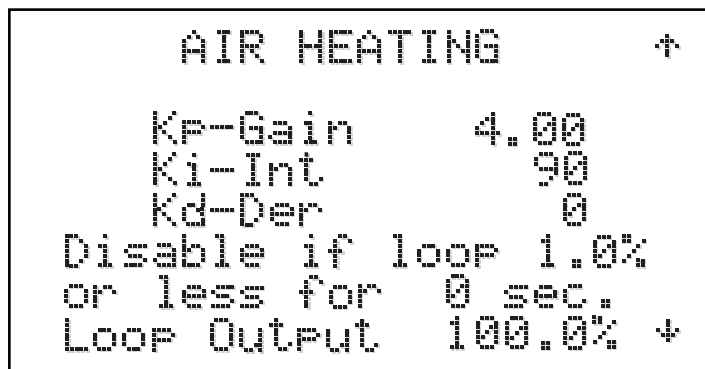


Figure 47

4.3.4.3 I/O Status (Figure 48)

Selecting the I/O Status from the SERVICE MENU displays the Digital Inputs, Analog Inputs, Digital Outputs and Analog Outputs selection menu (Figure 48). Use the **UP** and **DOWN** key to make a selection and press the **ENTER** key.

To return to the STATUS MENU, press the **Esc** key.

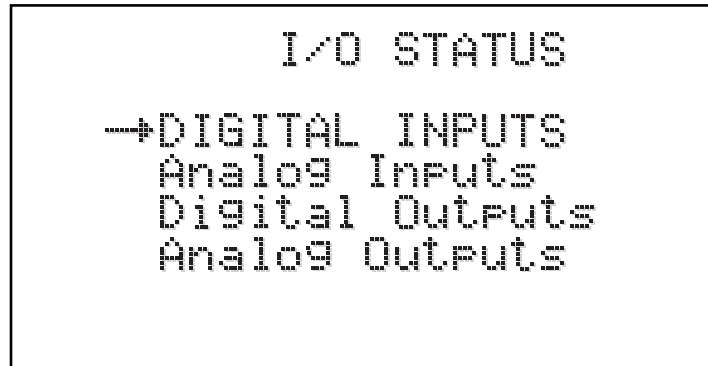


Figure 48

4.3.4.3.1 Digital Inputs (Binary) (Figure 49)

The Digital Inputs screen shows the state of the digital contacts used by the control system. These screens are provided for troubleshooting of the control system.

- The first line will show the status of U8, the supply blower motor starter overload contact. “OK” if the contact is closed, and “Flt” if the contact is open.
- The second line will show the status of U9, the compressor motor starter overload contacts. “OK” if the contact is closed, and “Flt” if the contact is open.
- The third line will show the status of U10, the System On/Off switch. “On” if the switch is closed, and “Off” if the switch is open.
- The fourth line will show the status of ID1, the smoke alarm contact. “OK” if the contact is closed, and “Flt” if the contact is open.
- The fifth line will show the status of ID2, the Occupancy contact. “On” if the contact is closed, and “Off” if the contact is open.

DIGITAL INPUTS			
U8	Blower	OL	OK
U9	Compressor	OL	OK
U10	System	On/Off	On
ID1	Smoke	Alarm	OK
ID2	Occupancy		On

Figure 49

4.3.4.3.2 Analog Inputs (Figures 50 - 52)

The Analog Inputs screens shows the state of the sensors used by the control system. The first screen (Figure 50) shows the zone sensor RH and Temperature conditions on the first two lines. Note that this sensor is a communicating device wired to serial port J4. The next lines show the readings of the Suction Pressure, Discharge Pressure and Liquid Pressure.

ANALOG INPUTS			
FB	Zone	Tmp	0.0° C
FB	Zone	RH	0.0 %
U1	Suct	Pr	0.0kPa
U2	Dsch	Pr	0.0kPa
U3	Liq	Pr	0.0kPa

Figure 50

The second screen (Figure 51) shows the Suction Temperature, Liquid Temperature, Return Air Temperature and the Air Pressure Drop across the Reheat Condenser.

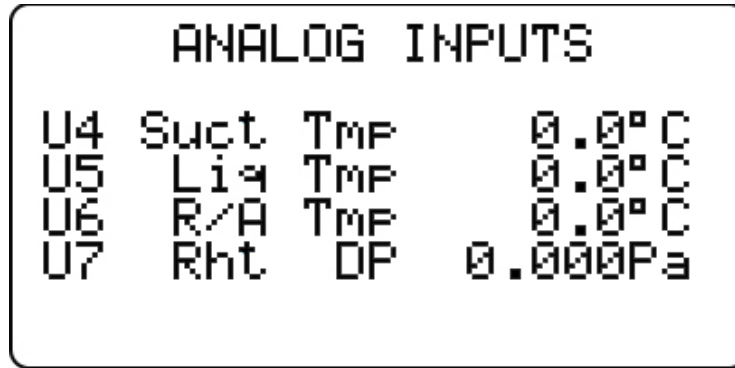


Figure 51

If the unit is equipped with an Outdoor Air option or a Surface Temperature option, a third screen will be shown (Figure 52). This screen displays the Air Pressure Drop across the Evaporator Bypass Damper and the readings of the Surface Temperature Sensors 1-4 depending on how many were selected.

To return to the I/O STATUS screen, press the **Esc** key.

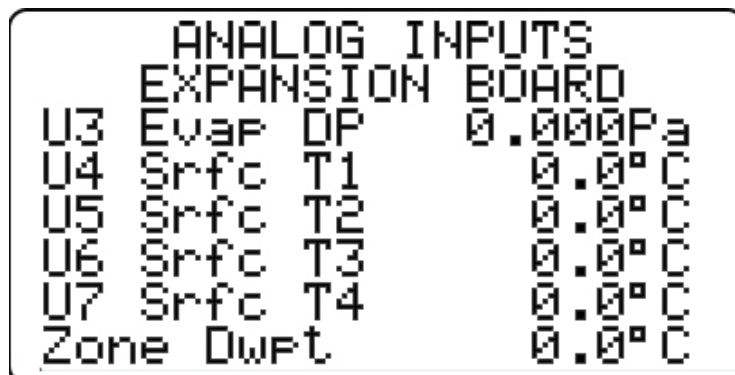


Figure 52

4.3.4.3.3 Digital Outputs (Binary) (Figures 53 - 55)

The Digital Outputs screens show the state of the device turned on and off by the control system. The first two screens (Figures 53 and 54), show the state of the relay contacts connected to the controller.

- NO1, Defrost Solenoid: “On” or “Off”.
- NO2, Reheat Solenoid: “On” or “Off”. If a Remote Condenser is disabled, this line will read “No Reheat Sol”.
- NO3, Supply Blower Starter: “On” or “Off”.
- NO4, Compressor Starter: “On” or “Off”.
- NO5, Liquid Solenoid: “On” or “Off”.

The second screen (Figure 54) contains the last Digital Output:

- NO6, Auxiliary Heat Contact: "On" or "Off".

To return to the I/O STATUS screen, press the **Esc** key.

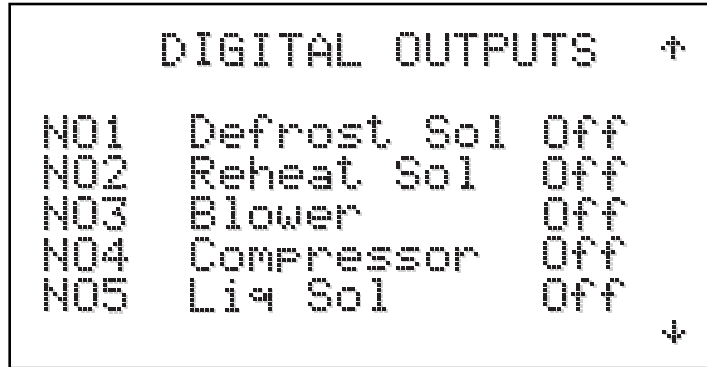


Figure 53

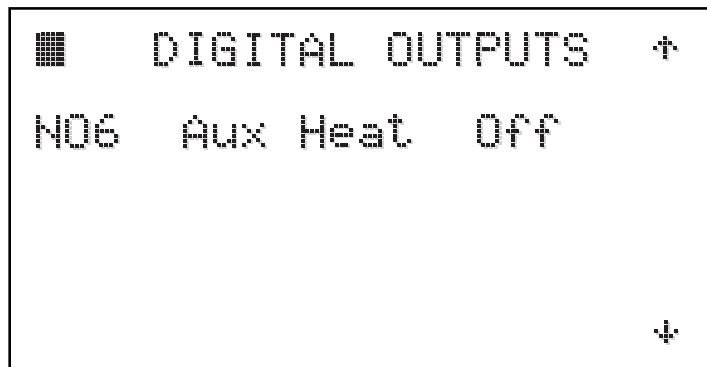


Figure 54

If the unit is equipped with an Outdoor Air option, then there will be a third screen of Digital Outputs (Figure 55), which shows the state of the relay contacts on the expansion module controller.

- NO1, Exhaust Blower: "On" or "Off".
- NO3, Outdoor Air Damper: "On" or "Off".

To return to the I/O STATUS screen, press the **Esc** key.

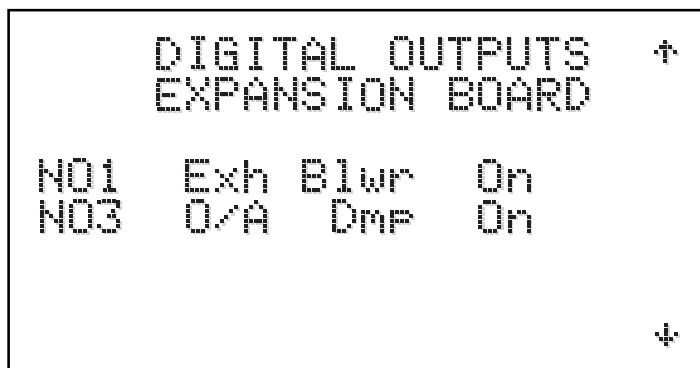


Figure 55

4.3.4.3.4 Analog Outputs (Figures 56 - 57)

This screen is provided for troubleshooting the control system. If the unit has been equipped with Modulating Heat, the Analog Outputs screen will look like Figure 56.

- Y2, the Air Heat Modulating Command: 0.0% to 100.0%.
If Modulating Heat has been Disabled, this will read “Mod Ht Off N/A”. And later in the section.

To return to the I/O STATUS screen, press the **Esc** key.

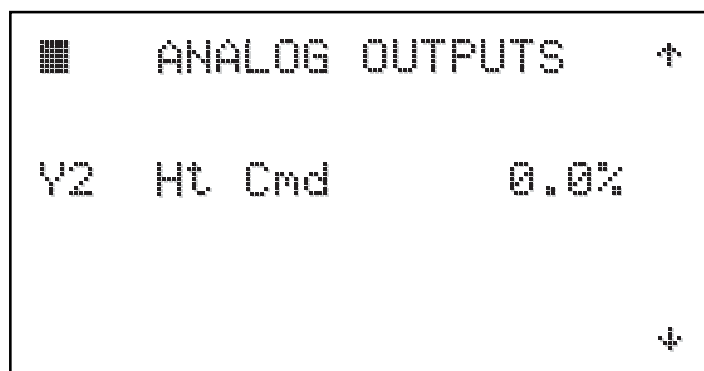


Figure 56

If the unit is equipped with the Outdoor Air Option a second Analog Output screen will be displayed (Figure 57). This screen displays the outputs of the Expansion Board Module.

- U1, the Outdoor Air Damper Command: 0.0% to 100.0%.
- U2, the Evaporator Bypass Damper Command: 0.0% to 100.0%.

To return to the I/O STATUS screen, press the **Esc** key.

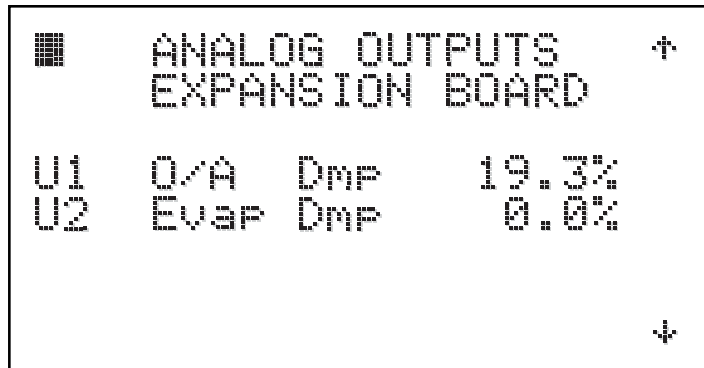


Figure 57

4.3.4.4 Sensor Offsets (Figures 58 - 59)

These screens allow the control values of the analog input points to be adjusted if calibration shows these devices to be inaccurate. The range of these offsets is -9.9 to 9.9. Exercise caution when applying an offset to an analog value, as erratic operation can result. To modify the offsets, press the **ENTER** key until the desired offset is selected and use the arrow keys until the desired setting is shown. Press the **ENTER** key to accept the offset value.

To return to the SERVICE MENU, press the **Esc** key.

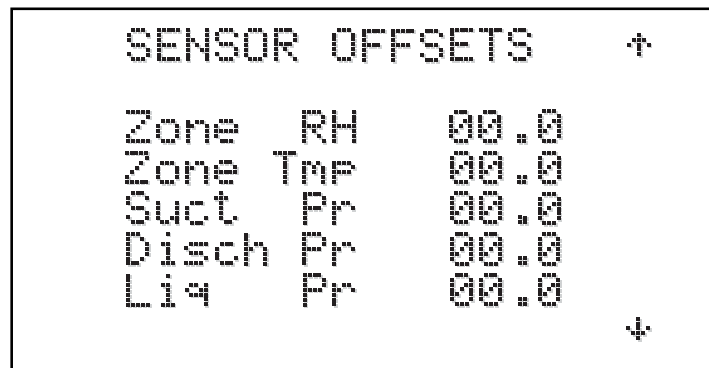


Figure 58

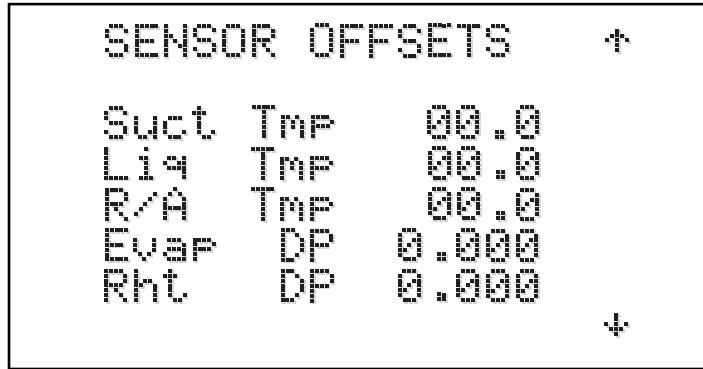


Figure 59

4.3.4.5 Diagnostics (Figures 60 - 62)

These screens show the refrigerant pressure, superheat and sub-cooling while a specific condenser is selected for use. Turn the override on to use that condenser.

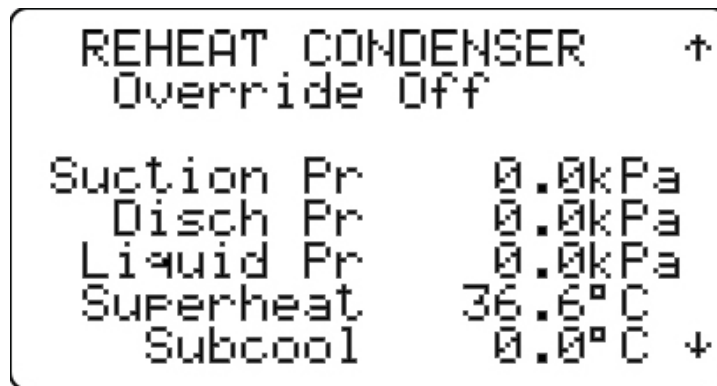


Figure 60

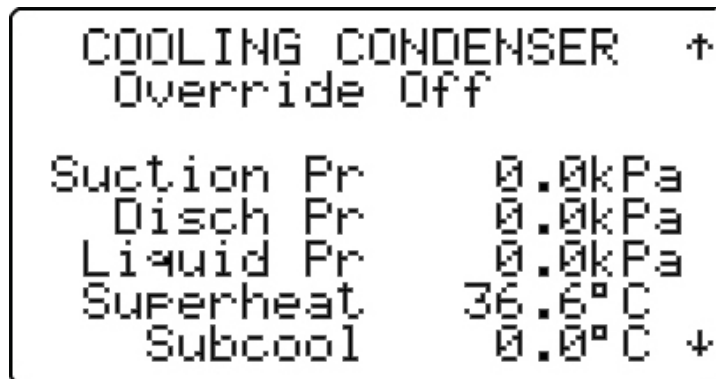


Figure 61

The AIR HEATING screen allows for the heater to be put into a manual mode for troubleshooting. Turn the override on to use and set a manual command.

To return to the SERVICE MENU, press the **Esc** key.

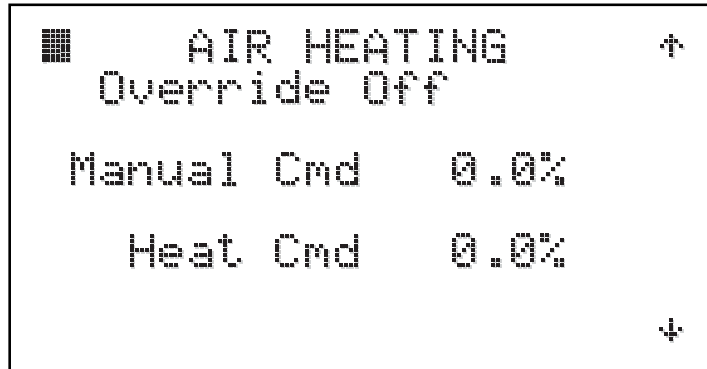


Figure 62

4.3.4.6 Memory Options (Figures 63 - 65)

These screens present options to write log files to internal memory or a USB Flash Drive, and to save or retrieve set point data. If using the USB Flash Drive option, insert the drive before writing or retrieval and remove after completion.

The second and third screens allow for the file Set Point.txt to either be saved or loaded. After the dehumidifier has been commissioned and is stable, saving the set points allows for these to be reloaded if anything happens to the controller. To use, select the memory file to write to, if USB Flash Drive insert a USB Flash Drive and with the cursor over the “Press UP to Import” or “Press UP to Export” field, press the **UP** key. Wait for the screen to say “Completed” before removing the drive.

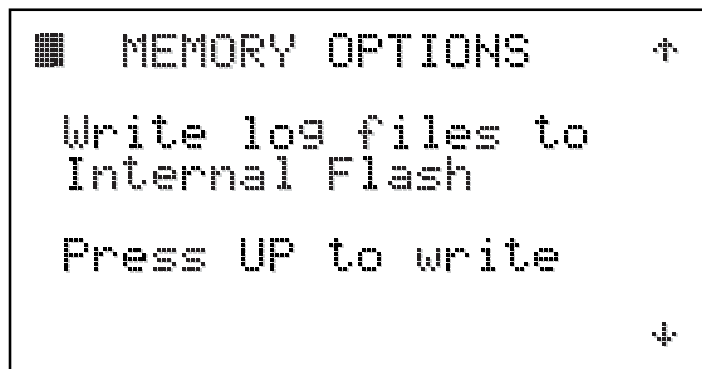


Figure 63

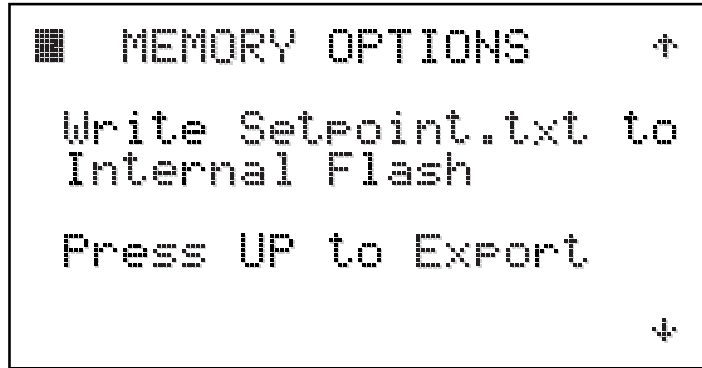


Figure 64

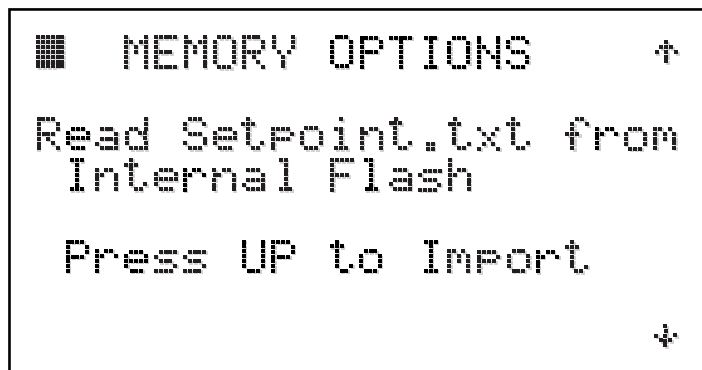


Figure 65

To return to the SERVICE MENU, press the **Esc** key.

4.3.4.7 Clear Overrides

Selecting CLEAR OVERRIDES from the Service Menu will display the screen in Figure 66. From the Clear Overrides screen, any service menu or factory test overrides can be cleared. Towards the bottom of the screen, the “Clear Overrides” text can be selected and changed to “Clearing...”. This will terminate any currently running overrides and factory tests.

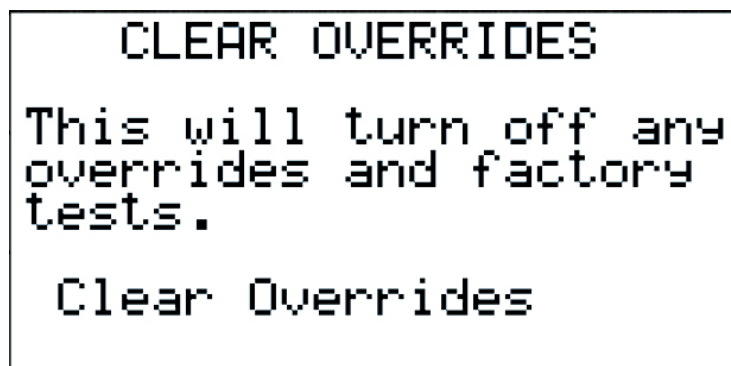


Figure 66

Press the **Esc** key to return to the SERVICE MENU.

4.3.5 Unit Revision (Figure 67)

The UNIT REVISION screen shows the version of the application program that is running, along with the release date of the software (Figure 67). If a service call is necessary, Desert Aire Service Department may request this information.

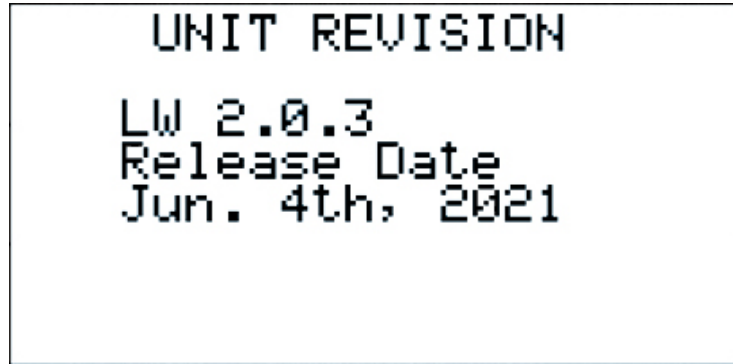


Figure 67

4.3.6 DriCure Setup (Figure 68)

Selecting DRICURE SCHEDULER from the first screen of the DriCure menu (Figure 68). This welcome screen will explain the keystrokes required to access the various screens in the DriCure subsystem. Press the **Esc** key to return to the Main Menu.

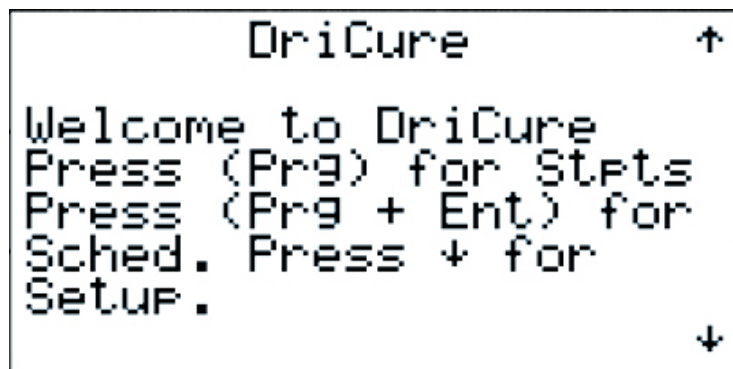


Figure 68

Pressing the **DOWN** key will display the second screen in the DriCure menu (Figure 69). From this screen the date of Day 1 can be set. This will be the first day of the DriCure schedule. This date can be manually set, or set for the current day by selecting "Set" and changing it to "Setting...". The transition time can also be set to any time from 0:00 to 23:00. The transition time will be the exact time of day that the schedule will transition from one period to another.

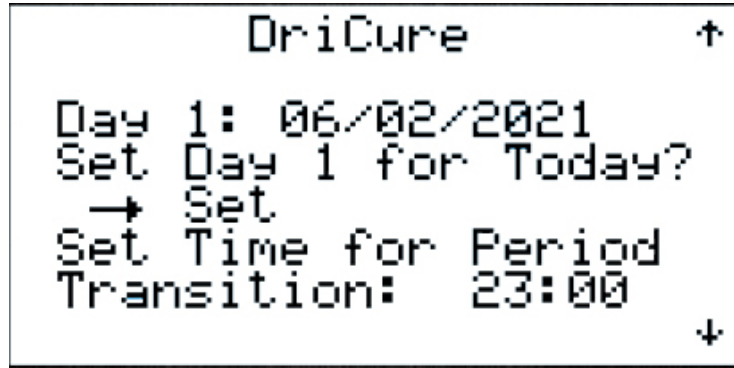


Figure 69

Pressing the **DOWN** key will display the next DriCure screen (Figure 70). This screen allows the user to reset all the settings of the DriCure Schedule. As displayed on the screen, this will set the Day 1 to the current day, all the durations will become 1 day, and the transition time will be set to 23:00. This can be done by selecting “Reset” and changing it to “Resetting...”.

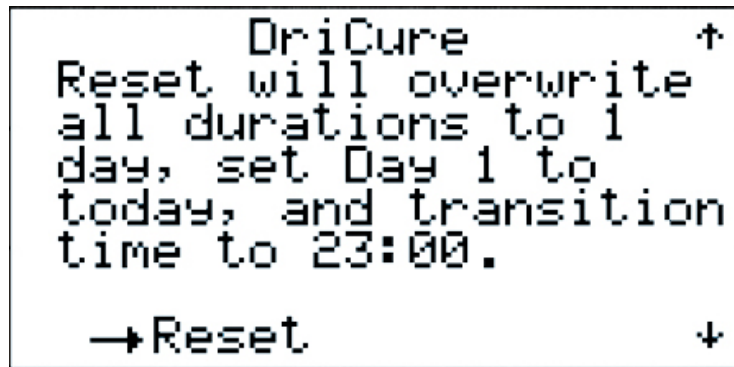


Figure 70

Pressing the **Prg** key will display two screens of DriCure setpoints (Figures 71 and 72). This screens allow for the adjustment of each period’s temperature and humidity setpoints. Press the **Esc** key to return to the DriCure Menu.

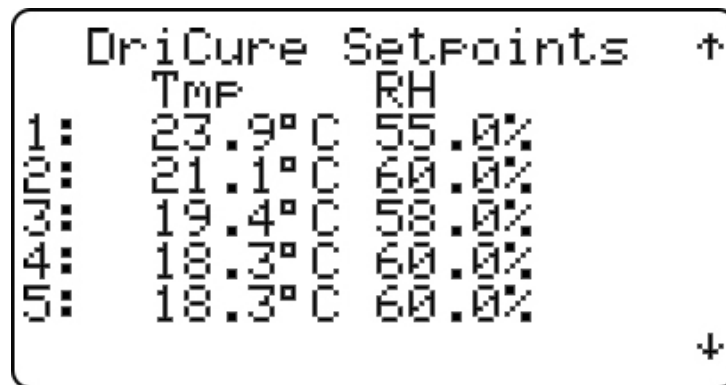


Figure 71

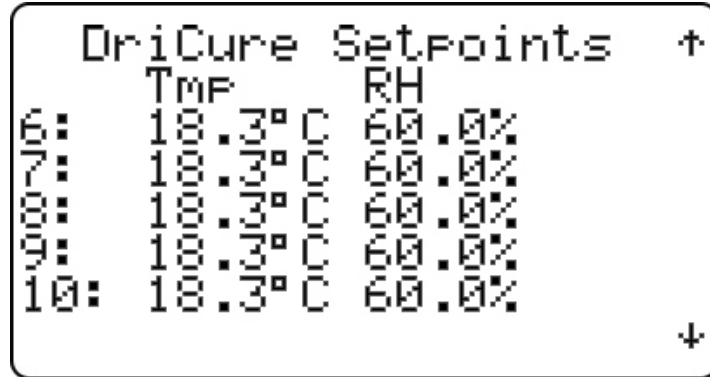


Figure 72

Pressing the **Prg + Ent** key will display two screens of the DriCure Schedule (Figures 73 and 74). These screens allow for adjustments to each period's duration. The number of days under the "Length" column can be adjusted from a minimum of 1 Day to a maximum of 5 Days. The dates on the right will automatically be calculated based on the duration of days entered. Press the **Esc** key to return to the DriCure Menu.

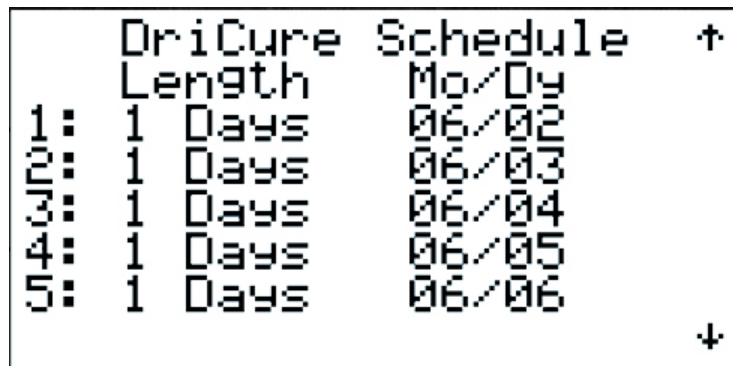


Figure 73

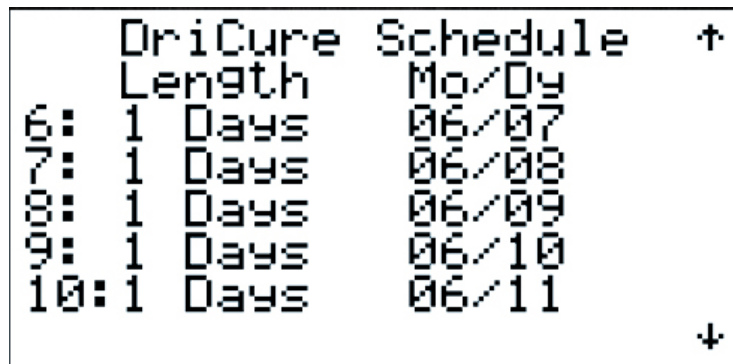


Figure 74

5. Alarm Menu (Figures 75 - 77)

	Do <u>not</u> attempt any Service, Troubleshooting, or Maintenance relying solely on these instructions. See the Installation and Service Manual for the appropriate instructions and warnings.
	Opening or removing any door/cover can potentially expose hazardous live voltage. Read the Installation and Service manual before opening or removing any door/cover.

To view the alarms from any menu, simply press the **ALARM** key. If no alarm is active, the display will state NO ALARMS ARE ACTIVE. See Figure 75.



Figure 75

When an alarm is triggered, a red LED behind the **ALARM** key will light up, and remain lit until the alarm is reset. If an alarm is present, pressing the **ALARM** key will display a screen similar to Figure 76. The display will show the triggered alarm along with the time and date. The bottom lines will display two pertinent data point values from the alarm.

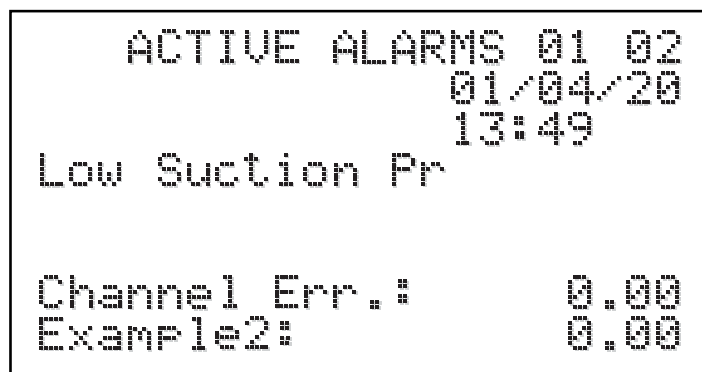


Figure 76

To reset the alarm, use the **DOWN** key until the reset instructions are shown. See Figure 77. Pressing the **ALARM** key for three seconds will reset all active alarms.

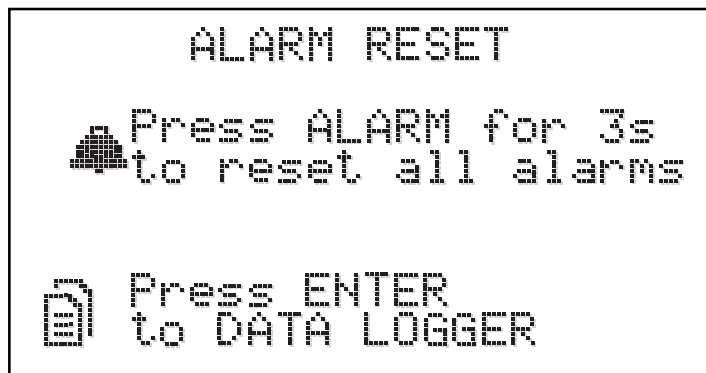


Figure 77

Alarms are either Automatic Reset or Manual Reset. Automatic Reset Alarms are alarms that allow the unit to return to operation once the operating parameter has returned to an acceptable operating condition. The unit will restart automatically, but, the red Alarm LED will remain illuminated until reset. Manual Reset Alarms are alarms that stop the unit and do not restart until the alarm condition is reset on the ALARM RESET screen. The red Alarm LED will remain illuminated until the alarm is reset.

To return to the Home screen, press the **Esc** key.

5.1 Too many mem writings or Retain mem write error

These are Automatic Reset Alarms. These alarms occur when there is an issue with the controller memory itself. If this fault cannot be reset, new controller hardware may be required. The red Alarm LED on the display will stay lit until the alarm is reset.

5.2 Low Suction Pr.

This is a Manual Reset Alarm. This alarm is activated when the suction pressure stays below 34.5 kPa for 5 minutes or longer. The refrigeration circuit will stop, and not restart until the suction pressure rises above 68.9 kPa and the alarm has been cleared.

The Pump Down controls of the compressor ensures that the compressor will not run once the suction pressure falls below 68.9 kPa. A low suction pressure alarm would be indicative of a refrigerant leak somewhere in the system, or a faulty solenoid.

5.3 Discharge Pr.

This is a Manual Reset Alarm. This alarm is activated when the discharge pressure rises above the high pressure cutout point, 2757.9 kPa. The refrigerant circuit will stop, and not restart until the alarm condition is reset manually. The red Alarm LED on the display will stay lit until the alarm is reset.

5.4 Compressor Overload

This is a Manual Reset Alarm. The Compressor Overload alarm is activated when the compressor motor overload device indicates an overload condition. In this state, the refrigerant circuit will stop and not restart until the alarm condition is reset manually. Typically, the motor-starting hardware will need to be reset along with a control system reset. The red Alarm LED on the display will stay lit until the alarm is reset.

5.5 Modbus Sensor Fault

This is an Automatic Reset Alarm. Check the communication wiring to the sensor when this fault occurs. The red Alarm LED on the display will stay lit until the alarm is reset.

5.6 Blower Overload

This is a Manual Reset Alarm. The Blower Overload alarm is activated when the blower motor overload device indicates an overload condition. In this state, the dehumidifier will stop, and not restart until the alarm condition is reset manually. Typically, the motor starting hardware will need to be reset along with a control system reset. The red Alarm LED on the display will stay lit until the alarm is reset.

5.7 Smoke Alarm

This is an Automatic Reset Alarm. The Smoke Alarm is activated if the alarm contact wired to digital input ID1 is opened. In this state, the unit will stop and not restart until the smoke alarm contact closes. The red Alarm LED on the display will stay lit until the alarm is reset.

5.8 c.pCOe Comm Fault

This is an Automatic Reset Alarm. The c.pCOe is the expansion module. Check the expansion module power and communication link. The red Alarm LED on the display will stay lit until the alarm is reset.

5.9 c.pCOe Cnfg Fault

This is an Automatic Reset Alarm. The c.pCOe is the expansion module. If alarm occurs please contact the Desert Aire Service Department. The red Alarm LED on the display will stay lit until the alarm is reset.

5.10 Alarm Log (Figure 78)



The Alarm Log screen (Figure 78) can be accessed from the Alarm Reset screen (Figure 78) by pressing the **ENTER** key. This screen shows records of the alarm log. The bottom two lines will show the pertinent data that was recorded when the alarm occurred. Use the **UP** and **DOWN** keys to view other records.

```
Alarm Log Record:01  
16:29/01/04/20  
  
Modbus Sensor Fault  
  
Event:          Start
```

Figure 78

To return to the Home screen, press the **Esc** key.

6. Hardware Details

	<p><u>Do not</u> attempt any Service, Troubleshooting, or Maintenance relying solely on these instructions. See the Installation and Service Manual for the appropriate instructions and warnings.</p>
	<p>Opening or removing any door/cover can potentially expose hazardous live voltage. Read the Installation and Service manual before opening or removing any door/cover.</p>

6.1 Programmable Controller

The programmable controller is preprogrammed by Desert Aire for the control of your unit. The Desert Aire replacement part number for this controller is available by calling our Service Department.

6.2 Suction Pressure Transducer

The Suction Pressure Transducers is a 0.5-4.5 VDC to 0-1723.7 kPa ratio metric device. The body is brass with a 1/4 SAE female refrigerant connection. This transducer must be supplied with 4.5 to 5.5 VDC power. A display reading of 0.0 kPa for the transducer indicates the device is disconnected or defective. For this device to function, 5.0 VDC must be present from the black to green wires on the transducer. To verify the output of the transducer, measure the DC voltage (should read between 0.5 to 4.5 VDC) from the white to green wires on the transducer and use this voltage in the following formula to determine the pressure (0-1723.7 kPa).

$$\text{Pressure (kPa)} = (430.9) * (V) - 215.5$$

Example, if V is 2.50 VDC, then;

$$\begin{aligned} \text{Pressure (kPa)} &= (430.9) * (2.50) - 215.5 \\ &= 1077.25 - 215.5 \\ &= 107,725 \text{ kPa} \end{aligned}$$

The Suction Pressure Transducer's replacement part number is available from Desert Aire by calling our Service Department.

6.3 Discharge Pressure Transducer

The Discharge Pressure Transducer is a 0.5 – 4.5 VDC to 0 – 4309.2 kPa ratio metric device. The body is brass with a 1/4-inch SAE female refrigerant connection. This transducer must be supplied with 4.5 to 5.5 VDC power. A display reading of 0.0 kPa for the transducer indicates the device is disconnected or defective. For this device to function, 5.0 VDC must be present from the black to green wires on the transducer. To verify the output of the transducer, measure the DC voltage (should read between 0.5 to 4.5 VDC) from the white to green wires on the transducer and use this voltage in the following formula to determine the pressure (0-4309.5 kPa).

$$\text{Pressure (kPa)} = (1123.8) * (V) - 561.9.$$

Example, if V is 2.50 VDC, then;

$$\begin{aligned}\text{Pressure (kPa)} &= (1123.8) * (2.50) - 561.9 \\ &= 2809.5 - 561.9 \\ &= 2247.6 \text{ kPa}\end{aligned}$$

The Desert Aire replacement part number for the Discharge Pressure Transducer is available by calling our Service Department.

6.4 Suction Line, Liquid & DHU Temperature Sensor

These temperature sensors are a resistive NTC bulb type device with a 3.05 meter cable. The temperature range is -50°C to 100°C and the environment rating is IP67. The failure mode of this device will display a reading of -364°C if the sensor is open, and display a reading of 364°C if the sensor is shorted. The Desert Aire replacement part number for the Supply Air Temperature sensor is available by calling our Service Department.

6.5 Zone Air Temperature and Relative Humidity Sensor

This sensor is a communication device which sends Modbus data out from address 190. If communication is lost from this device, a Modbus Sensor Fault alarm is activated. The Desert Aire replacement part number for the Zone Air Temperature and Relative Humidity Sensor is available by calling our Service Department.

6.6 Reheat Condenser and Evaporator Bypass Differential Air Pressure Sensors

These sensors have a range of 0.0 Pa to 497.7 Pa. The output of this device is a 0.25 VDC at 0.0 Pa and 4 VDC at 497.7 Pa. The Desert Aire replacement part number is available by calling our Service Department.

7. Appendix

7.1 Internal Web Page

The programmable controller is preprogrammed by Desert Aire to include a web page allowing a virtual remote display to be used from any node on your facility's computer network. Simply attach an Ethernet cable from your facility's computer network to the RJ45 port of the controller. Always check with your IT department before connecting this device to your network.

The Ethernet port of the controller has a factory default of DHCP for the TCP/IP address. To obtain the current address, access the Network Config screen (see Section 4.3.4.1.5, Figure 28). A static TCP/IP address can be set from this screen. Refer to your IT department to obtain a static TCP/IP address. Browse the IP address assigned to the dehumidifier, enter the appropriate credentials, [user – Desert-Aire, password – 18485] and select the DISPLAY tab. Logging is also available from this web page. Wait a few moments for initialization, and use your mouse to click the keys. Key combinations are defined on the bottom of this web page.



OPTIMIZING SOLUTIONS THROUGH SUPERIOR DEHUMIDIFICATION TECHNOLOGY

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