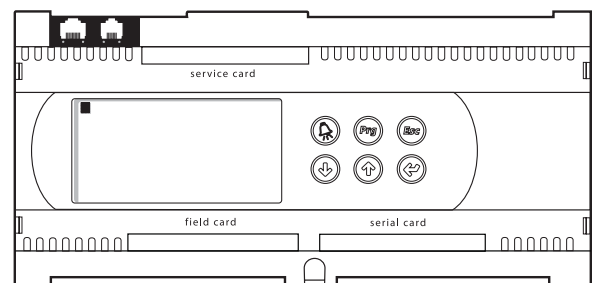
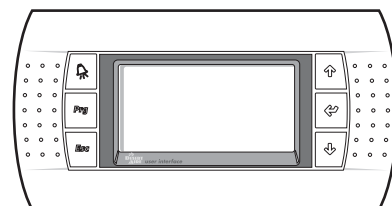




CM35xx Controller Quick Start Guide



CM35xx Controller



CM35xx User Interface

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CM35xx Controller Quick Start

1. Introduction and Overview

In our efforts to bring the latest technologies to the dehumidification industry, your Desert Aire dehumidifier may come with a CM35xx control system. The two x's in our nomenclature indicate that we offer multiple versions within this family of controllers. The general form of the controller numbering system is:

- CM3500 for IAQ (QS/QV) products
- CM3510 for ND/SA products
- CM3520 for QM products
- CM3530 for LC/LV products

This document is meant to cover the commonality of the above control systems. While not providing specific menu-to-menu detail, it will provide a means for viewing the menu structure in your controller. This document has been created to allow the operator to navigate the menu structure, set the internal occupancy schedule, view pertinent system data, and modify setpoints. It can also be used by an experienced technician to review the basic operation of CM35xx systems.

Differing dehumidifiers will use a different combination of CM35xx control devices. Some units will come with a controller that has a display that's internal to the controller (i.e. internal display terminal or IDT) and some will come with a remote display terminal (RDT). Although the placement of the keys for these two options is different, the key functions are exactly the same. Figure 1 shows an RDT and Figure 2 shows an IDT. The ND/SA and LC products will use the RDT and the QM will use the IDT. The IAQ products will use a combination of RDTs and IDTs, typically depending on the physical placement of the controller in the unit. If the controller is mounted too low to comfortably view an IDT, an RDT will be provided for mounting where convenient for the user. Also note that an RDT can be plugged into port J10 even with an IDT and used for remote mounting if desired.

2. Mounting the Remote Display Terminal (RDT)

The remote terminal must be located in a dry, non-corrosive environment. Operating conditions must be between 0° F and 140° F and less than 90% RH. Moisture or concentrated pool chemicals can damage the circuitry of the RDT. The RDT can either be affixed directly to the dehumidifier or located up to 20 feet away using the cable that came with the display.

2.1 Installing the RDT

The remote terminal is an IP40 device and is powered through the cable provided. If a longer length is required, a standard 24 AWG, 6 conductor phone cable may be used up to 150 feet. For location of the sensor up to 1,500 feet, use 22 AWG, 3 twisted pair cable. See your wiring schematic for connection details.

Pull the cord and connector through the hole in the back of the mounting bracket. Attach the bracket to the wall. After plugging the cord into the back of the RDT, feed any extra wiring back into the hole of the mounting bracket and gently snap the RDT into the bracket.

CAUTION: Do not run the remote terminal wiring in the same conduit as, or adjacent to wires carrying over 30 volts!

3. General Instructions

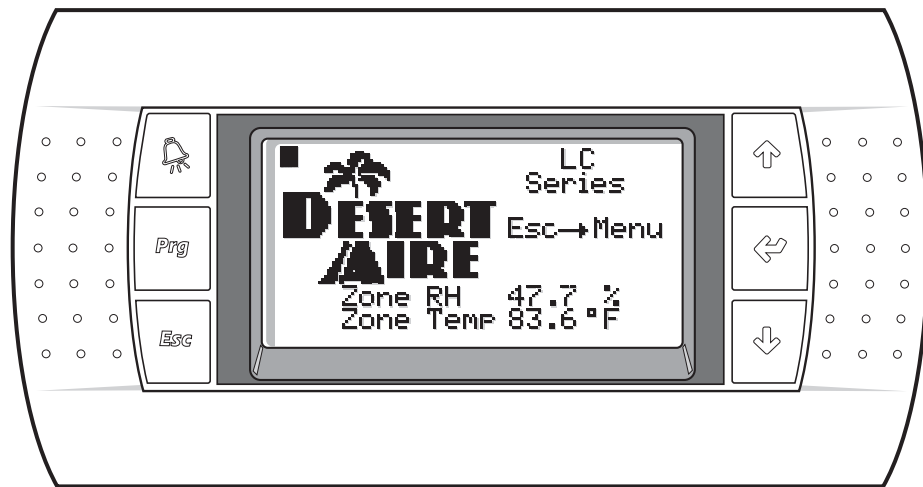


Figure 1

The controller is pre-programmed and configured at the factory for use in the application you have specified. The RDT, Figure 1, allows the operator to monitor the operation and adjust the setpoints of the Desert Aire dehumidifier. The RDT has an LCD screen and 6 keys. The keys on the left hand side of the RDT, top to bottom, are the ALARM key shown as an alarm bell, PROGRAM key abbreviated “Prg” and the ESCAPE key abbreviated “Esc.” The keys on the right hand side of the RDT, top to bottom, are the UP key shown as an up arrow, the ENTER key shown as a left arrow and the DOWN key shown as a down arrow.



Figure 2

The IDT, Figure 2, allows the operator to monitor the operation and adjust the setpoints of the Desert Aire dehumidifier. The IDT has an LCD screen and 6 keys. The keys on the top row are the ALARM key shown as an alarm bell, PROGRAM key abbreviated “Prg” and the ESCAPE key abbreviated “Esc.” The keys on the bottom row are the UP key shown as an up arrow, the DOWN key shown as a down arrow and the ENTER key shown as a left arrow.

The Home Screen will display the Desert Aire logo and the dehumidifier type in the upper right. Below it, “Esc→Menu”, indicates that if the Esc key is pressed, the MAIN MENU will be displayed. On any other screen, pressing Esc will take you back one screen. The bottom two rows will display the specific unit data which might include occupancy status and zone conditions.

Menu screens allow the user to select from a series of actions. The action that is capitalized on the screen will be selected when the ENTER key is pressed. To cycle through the selections on a menu screen, use the UP and DOWN keys.

If setpoints 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 will 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.

To view the alarms from any menu, simply press the ALARM key. The UP and DOWN keys will show any active alarm. Any time an alarm is triggered, the red LED behind the ALARM key will light. This LED will remain on until the alarm is acknowledged. Alarm acknowledgement and history instructions are shown on the main Alarm Screen. To escape from the alarm screens, press the Esc key.

Screens which display a small up arrow in the upper right and a small down arrow in the lower left 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 a while, the remote terminal will return to the Home Screen.

3.1 Main Menu

Pressing the Esc key from the Home Screen displays the MAIN MENU and allows for the listed screens to be selected. The unit setpoints can be selected for adjustment from this screen as well as the Temporary Occupancy Screen, the Occupancy Schedule Screen and the Unit Revision Screen. In some cases a Status Screen will be displayed which allows for viewing the status of the unit and viewing the sensor data on the unit. If the Status Screen is not shown here, see the SERVICE MENU, Section 3.7, for Status Screen access.

3.2 Unit Status

Selecting the Unit Status will display most controller data either directly or by selecting the appropriate screen. The unit mode is typically shown on the Status Screen, which will indicate one of six possibilities. The unit can either require heating, cooling or be satisfied. If the humidity in the zone is high, then heating/dehum, dehum or cooling/dehum could be displayed.

3.3 Setpoints

A selection on the MAIN MENU will allow for the setpoints to be altered. Selecting this screen will allow the supply air temperature, zone temperature, zone humidity or pool temperature setpoints to be modified, depending on the unit. Refer to Section 3. for setpoint modification instructions.

3.4 Temporary Occupancy

This screen allows the operator to set the unit into occupied mode for a preset amount of time. Press the ENTER key and enter in the hours and minutes you would like the unit to be temporarily in the occupied mode. When the cursor is blinking over the "Press Prg to set" message, pressing the Prg key will override the schedule and allow the unit to be temporarily occupied. The screen will now show "Override On." To clear this occupied override, set the hours and minutes to zero and press the ENTER key. The screen will now show "Override Off." Use this option for forcing an occupied condition during an irregular occupied period or for troubleshooting. For troubleshooting purposes, you may need to force the unit into the unoccupied mode. Refer to Section 3.5 to turn the Occupancy Schedule off and ensure that the digital input is not closed, forcing remote occupancy. Also, if the BMS has set the unit to the occupied mode, this must be turned off to force the unoccupied mode.

3.5 Occupancy Schedule

Selecting the SCHEDULE SETUP from the MAIN MENU takes you to the OCCUPANCY SCHEDULE MENU. This menu allows you to access and adjust the Schedule Options, Temporary Holidays, Annual Holidays and Time settings. Detailed instructions for these screens are as follows.

3.5.1 Schedule Options

This screen selects the number of occupancy schedules to be active. Setting at least one allows the occupancy schedule timing to be set from the Current Schedule Screen. If the number of active schedules is left at zero, no occupancy scheduling will be active.

3.5.2 Current Schedule

This screen sets the occupancy timing for the selected day of the week (DOW) at the bottom of the screen. Select the schedule to modify the start time and stop time. This is the time band that the unit will be in the occupied mode. All times are set in the 24 hour format. As the DOW is selected, the UP and DOWN keys allow for Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, Sunday and any holiday to be occupied during that time. Up to 10 schedules can be active at any time. These allow for different start and stop times on various days of the week, weekends or programmed holidays.

3.5.3 Temporary Holidays

The Temporary Holiday settings are for holidays that change dates from year to year, such as Memorial Day or Thanksgiving. Up to 10 different temporary holidays can be set from this screen. Select the number to assign to the Annual Holiday and then select the Start Date and the End Date for that holiday.

3.5.4 Annual Holidays

The Annual Holiday settings are for holidays with dates that remain constant year to year, such as New Years Day and the 4th of July. Up to 10 different annual holidays can be set from this screen. Select the number to assign to the Annual Holiday and then select the Start Date and the End Date for that holiday.

3.5.5 Set Time

This screen allows the time, date and day of week to be set. 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 step to the next item. Press the ENTER key to change the time and date.

3.6 Unit Revision

The Unit Revision Screen shows the version of the application program that is running along with the release date of the software. This information should be passed to Desert Aire in the event a service call is necessary. The SERVICE MENU and FACTORY CONFIGURATION are accessible only from this screen.

Press the UP and DOWN keys at the same time to display these menus.

3.7 Service Menu

Selecting the SERVICE MENU will display the Login Screen. Enter the service password, 1234, and press ENTER. The SERVICE MENU allows service related information to be viewed and modified. Screens that could be available include the Unit Status, I/O Status, Pressure Cutouts, Sensor Offsets, O/A RH and Temperature Setpoints and other unit parameters. If PID loops are included for heating or cooling control, these will be accessible from the SERVICE MENU. The password is bypassed for 5 minutes after it is first entered. This is displayed on the Login Screen with the text, "Still Logged In, Press PRG to Enter." To re-enter the SERVICE MENU without entering the password, just press the Prg key.

3.8 Unit Status

Selecting the UNIT STATUS MENU allows unit specific data to be viewed. These could include air/water priority, system mode, occupancy state, event state and compressor requirements.

3.9 Factory Configuration

The Factory Configuration is preset at the factory before the unit is shipped. Changes to the configuration could cause damage to the unit. Modification to these settings should only be done by a factory trained technician.

3.10 I/O Status

Selecting the I/O Status Screen displays the four types of I/O devices wired to the unit. These include the digital inputs, analog inputs, digital outputs and analog outputs. The Digital Input Screen will display the state of any switch wired to a digital input on the wiring diagram. The digital inputs are designated as ID on the controller and include switches or contacts. The Analog Input Screen displays the status of any sensors wired to the analog inputs on the wiring diagram. The analog inputs are designated as B in the controller and include devices such as air pressure transducers, refrigerant transducers, RH sensors and temperature sensors. The Digital Output Screen displays the state of devices wired to the digital outputs on the wiring diagram. The digital outputs are designated as NO or NC on the controller and include devices such as relays, contactors or solenoid coils. The Analog Output Screen displays the value of devices driven by the output. The analog outputs are designated as Y on the controller and include devices such as damper actuators and positioning valves. Please note that the analog outputs from any CM35xx controller are only 0-10 VDC. A 4–20 mA output is not available.

3.11 Pressure Cutouts

This screen simply displays the Refrigerant Selection, High Discharge Pressure and Low Suction Pressure cutout values for the appropriate refrigerant selected. The operator cannot change these settings. The Cooling Mode Low Pressure Trip is shown because if the unit is an IAQ heat pump, and the compressor is used for heating, the

low pressure trip is varied based upon the glycol ratio.

3.12 Sensor Offsets

This screen allows the control values of the analog input points to be adjusted if calibration shows these devices to be inaccurate. The range of these offsets that can be entered is from -99.9 to 99.9. Care must be used 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. Pressing the ENTER key will now change the offset.

3.13 Building Management Communication

The Building Management Communications is set to correspond with the serial card installed in the controller. The communication types available with a CM35xx controller are LONWORKS®, BACnet™ MSTP, BACnet™ EtherNET or ModBus® Slave. The correct serial card must be installed in the controller for the BMS communications to be active. In the ModBus® Slave mode, the baud rate and address will be displayed. The baud rate can be set to 1200, 2400, 4800, 9600 or 19200. The address should be set to the node number for the dehumidifier on the ModBus® network.

4. Alarm Menu

The ALARM MENU can be accessed anytime by pressing the ALARM key. The main Alarm Screen includes the instructions for viewing and resetting the alarms, as well as a means to access the Alarm History Screen. Pressing the ENTER key while viewing the main Alarm Screen will reset any alarm that has returned to its safe state. Please note that active alarms can only be reset on this screen and not while the alarm is being displayed. Return to this screen and press the ENTER key to reset any alarm that has returned to its safe state. Any active alarm can be viewed by pressing the DOWN key from this screen. If no alarm screen is shown, no alarms are active. To view the Alarm History Screen, press the ALARM key.

4.1 Alarm History Screen

The Alarm History Screen is accessible from the main Alarm Screen by pressing the ALARM key. This screen lists a history of alarm conditions by time and date which have existed on the unit. The most recent alarm will be displayed as 001. The condition that triggered the alarm will be displayed along with the sensor data saved at the time the alarm was triggered. This is done to aid in troubleshooting the alarm condition. To access the entire listing of the alarm history, use the DOWN key to scroll through the recorded alarms.



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