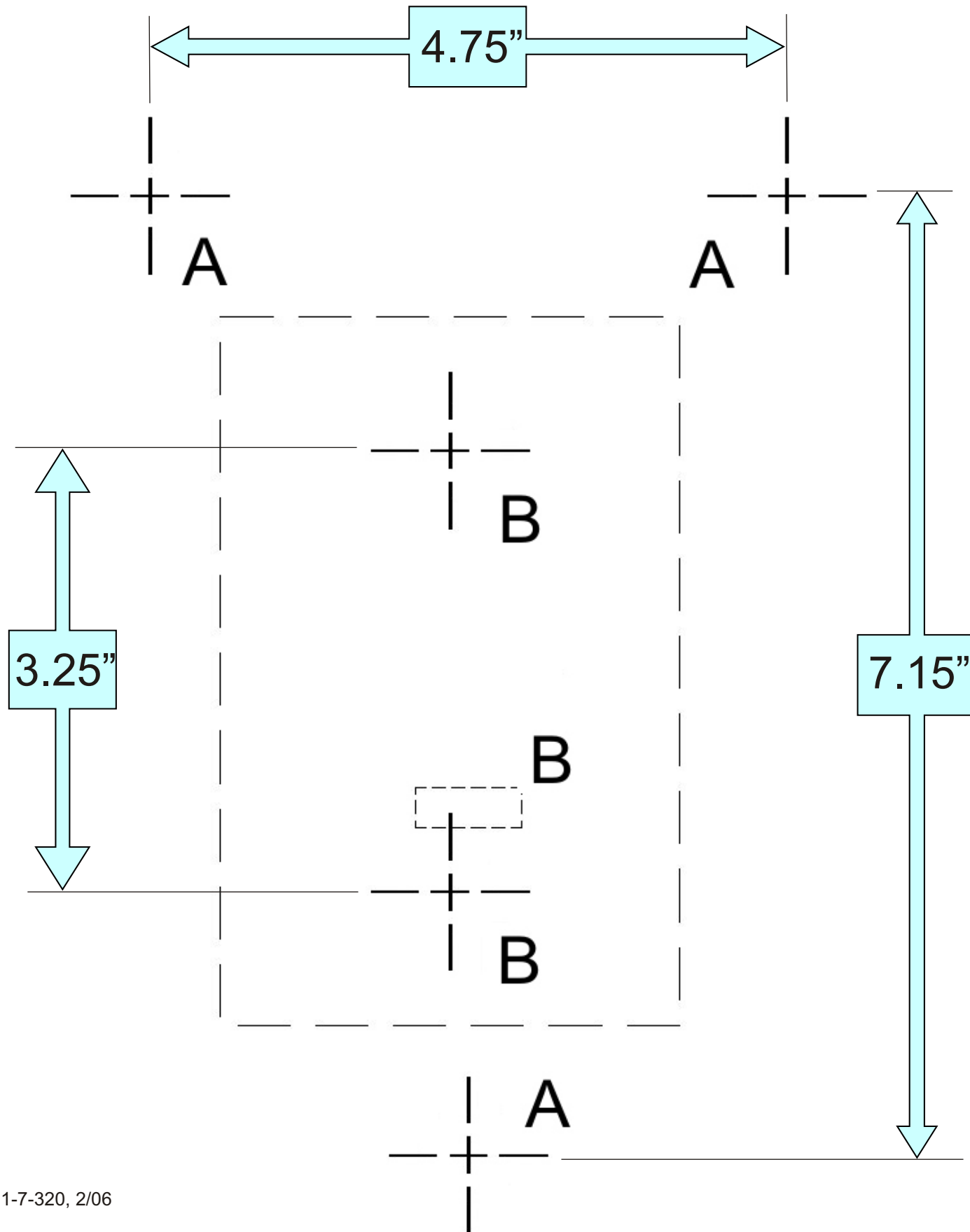


Drill Template

Drill centers marked "A" for the **Appliance Control Box**

Drill centers (and ensure free space behind rectangle) marked "B" for the **Wall control**



IMPORTANT - READ ALL INSTRUCTIONS CAREFULLY BEFORE INSTALLATION



Wall Thermostat and 2-Speed Evaporative Cooler Control System - Model NDS

READ AND SAVE THESE IMPORTANT SAFETY INSTRUCTIONS

CAUTION: FAILURE TO READ AND FOLLOW ALL INSTALLATION AND OPERATING INSTRUCTIONS COULD LEAD TO PERSONAL INJURY AND/OR DAMAGE TO PROPERTY.

CAUTION: ALL ELECTRICAL INSTALLATIONS MUST COMPLY WITH LOCAL BUILDING AND SAFETY CODES AND MUST BE PERFORMED BY QUALIFIED SERVICE PERSONNEL ONLY.

System Overview

- This control system is intended to be used on an evaporative cooler with a water circulating pump and a 2-speed fan motor operating on a dedicated branch circuit. Use of this control with single speed fan motors is not recommended.
- The control is designed for use with a Fan Motor up to 1HP (16 Amp @ 120V) / 2HP (12 Amp @ 240V) and a Water Pump up to 2 Amp @ 120V (1 Amp @ 240V).
- The Fan Motor may be rated 120V or 240V.
- The Water Pump may be rated 120V or 240V.

Included in kit

- Wall control thermostat
- 2-Speed Evaporative Cooler Control in Rainproof enclosure
- Wire Nut for common grounding connection
- Spare 2 Amp fuse for Water Pump

One Year Limited Warranty

The Aerocool Division of Phoenix Manufacturing, Inc, Phoenix Arizona, extends this warranty to the original purchaser of this Nth Degree Wall Thermostat and 2-Speed Evaporative Cooler Control System Model NDS installed and used under normal residential (non-commercial) circumstances in the continental United States.

What this warranty covers and for how long

We will exchange or repair, at our option, any control which fails as a result of a defect in material or workmanship for one year from date of initial purchase.

What this warranty does not cover

We are not responsible for any damage or malfunction unless caused by a defect in material or workmanship. Determination of defects in materials or workmanship is at the sole discretion of Aerocool or its appointed representative. This includes, but is not limited to, abuse or misuse, improper installation, maintenance or operation, and transportation damage.

We do not pay the cost of a service call to the site or installation to diagnose cause of trouble, the cost of labor to install or replace the part or a mileage allowance to and/or from the site, or the freight / postage on any exchange or replacement part.

Specifications

- Electrical Ratings:
Input voltage: 120 or 240 VAC, 60 Hz.
- Fan motor rating:
1 Hp max, 16 FLA, 96 LRA at 120 VAC
2 Hp max, 12 FLA, 72 LRA at 240 VAC
- Pump Rating:
2 FLA, 12 LRA at 120 VAC
1 FLA, 6 LRA at 240 VAC
- Combined Total Load:
18 FLA at 120 VAC
13 FLA at 240 VAC

DO NOT exceed the specified ratings of this control

Additional Requirements

Depending on the application and installation locations, the following additional items will be required:

- Screws or bolts adequate for securing the Appliance Control Box and Wall Control to their mounting surfaces.
- Wiring for connections between:
Power supply and Appliance Control Box
Wall Control and Appliance Control Box (4-wire low voltage cable)
Appliance Control Box and cooler junction box.
- Watertight conduit and connectors to protect all exposed high voltage wiring. Some locations may also require conduit for low voltage control wiring, check local electrical codes and practices.

Installation of the Appliance Control Box

CAUTION: TO PREVENT ELECTRICAL SHOCK AND/OR DAMAGE TO THE EQUIPMENT, DISCONNECT ELECTRICAL POWER TO THE SYSTEM AT THE MAIN FUSE OR CIRCUIT BREAKER BEFORE STARTING THE INSTALLATION, AND LEAVE DISCONNECTED UNTIL THE INSTALLATION IS COMPLETE.

- 1) After determining a suitable place to install the Appliance Control Box, mark the location of the three mounting points. Use the "Appliance Control Box Drilling Template" provided on the last page.
- 2) Determine which knockout locations will be used for the high voltage wiring and wall control wiring.
- 3) Using a suitable tool, gently remove the required hole size for each knockout to be used.
- 4) Depending on the mounting surface, drilling of pilot holes for the mounting screws may be required.

We are not responsible for any incidental or consequential damage resulting from any failure, malfunction or defect that is a result of unauthorized modification or service, or the use of products other than those from Aerocool.

How to obtain service under this warranty

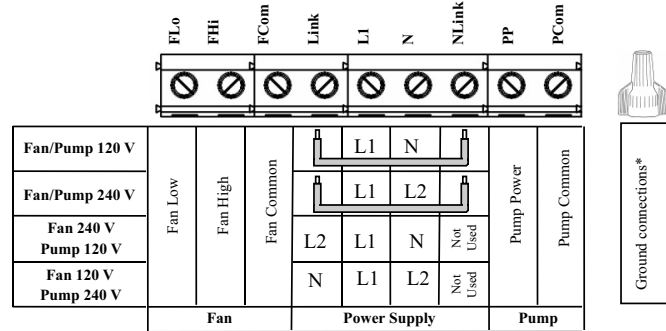
Contact the dealer where you purchased your control system. You may also contact us on the internet at www.evapcool.com, or write us at Warranty Dept., Aerocool, 3655 E. Roeser Rd, Phoenix, Arizona, 85040. Include your name, phone number, address and zip code, the dealer involved, a description of your problem and a copy of your proof of purchase.

This warranty is the only warranty extended by Aerocool to the original purchaser of Nth Degree control systems, Aerocool disclaims all other warranties, expressed or implied, that arise by operation of the law, except that implied warranties of merchantability or fitness for a particular purpose are limited to the duration of the expressed limited warranty period. Aerocool shall not be liable to any incidental or consequential damages, above the limitations or exclusions stated above which may have resulted from any alleged breach of warranty.

Some states do not allow the exclusion for any incidental or consequential damages, so the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights, and you may have other rights which vary from state to state.

- Mount the Appliance Control box to surface with the indication 'TOP' uppermost, using suitable screws for the surface.
- Install wiring conduit and connections. Ensure all connections are sealed watertight, especially where the knockouts were removed.
- Run high voltage wiring from power supply to Appliance Control box and from Appliance Control to cooler. Run low voltage control wiring from Appliance Control to the wall control location, in accordance with all local and national electrical codes, appropriate to the installation.
- Connect the high voltage wires in accordance with the wiring diagram below (also located on the inside lid of the box). Control wiring connections will be completed during the next step.

Wiring Connections in Appliance Control Box



*Note: Use a suitable wire connector (wire-nut) to terminate all ground connections for power supply, fan, pump and cabinet grounding.

Installation of the Wall Control - cavity wall without outlet box

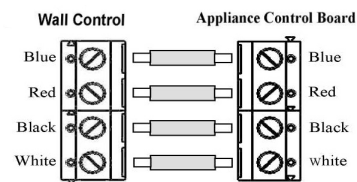
- Determine a suitable place to install the Wall Control
 - Locate it about 5 ft above the floor on an interior wall, avoid locating it on an outside wall or on a wall where there is a stove or refrigerator on the opposite side of the wall. Make sure there are no pipes or duct work in that part of the wall chosen as the thermostat location.
 - Never expose it to direct light from lamps, sun, fireplaces, or any temperature radiating equipment (stoves, refrigerators, etc).
 - Avoid locations close to doors that lead outside, windows or air registers, or in the direct path of air from them.
 - Never locate it in an area that is warmer or cooler than the rest of the building. Avoid locations with a lack of air circulation, such as behind doors or in alcoves (closets).
- Mark and drill the locations of the two mounting points and for the terminal block (it protrudes from the back). Make a hole in the wall just large enough to accommodate the terminal block and associated wiring. Use the "Wall Control Drilling Template" provided on the last page.
- Route an insulated four-conductor thermostat cable (or similar wiring) from the Appliance Control Box through the hole, leave about six inches of cable/wire protruding.
- Connect the wires to the terminals per the wiring connection diagram, push any excess wiring back into the wall and plug hole with non-combustible material to prevent drafts from affecting thermostat operation. Secure the Wall Control to the wall.

Installation of the Wall Control - using an existing wall-mounted outlet box

CAUTION: Only use a single outlet box and do not share wiring with any other equipment.

- Route an insulated four-conductor thermostat cable (or similar wiring) from the Appliance Control Box to the outlet box, leave about six inches protruding.
- Connect the wires to the terminals per the wiring connection diagram. Secure the Wall Control to the outlet box.

Wiring Connections -
Wall Control to
Appliance Control Box



Operating Instructions

Automatic Operation (COOL mode)

The fan motor and water pump will be automatically controlled to achieve the desired comfort level using the least amount of energy possible.

Activate this mode by pressing the 'COOL' button. A green light is illuminated, and for a few seconds the Wall Control will display the 'Set' temperature. Pressing the 'COOL' button again deactivates this mode.

The Set temperature (the target temperature for the Wall Control to maintain) may be altered by repeatedly pressing or holding the '▲' or '▼' buttons. The Wall Control will display 'Set' rather than 'Room' temperature for a short time after pressing '▲' or '▼'.

On start-up of the cooler by the Wall Control, if the pads are too dry (cooler is off too long), the fan motor will be delayed from starting until the pads have absorbed some water. This is called the **Pre-wet** cycle, it lasts for 1-1/2 minutes and is indicated by flashing the green **FAN** light. Selecting 'FAN' and then 'COOL' will bypass the Pre-wet cycle and cause the fan motor and pump to start immediately.

Ventilation Operation (FAN only mode)

The fan motor speed is set by the user and the water pump is turned off. The fan motor will run continuously until manually turned off or switched to the 'COOL' mode

Activate this mode by pressing the 'FAN' button. A green light is illuminated, and the Wall Control display indicates fan speed. Pressing the 'FAN' button again deactivates this mode.

Pressing the '▲' button selects maximum Fan speed and the Wall Control will display 'Hi'; pressing the '▼' button selects minimum Fan speed and the Wall Control will display 'Lo'.

Time Delay Operation (Timer mode)

This will enable a delayed start or stop of the control in the 'Cool' or 'Fan' mode.

The 'TIMER' button is used to set a delay period of 2, 4, or 8 hours, depending on how many times the button is pressed.

- If the control is operating (in 'COOL' or 'FAN' mode) when the 'TIMER' button is pressed, the delay period determines when the system will turn off and stop controlling the cooler's operation. When this occurs all lights will go out and the system will only display the room temperature.
- If the control is Off when the 'TIMER' button is pressed, the delay period determines when the system will switch on and begin controlling the cooler's operation.

The starting mode is indicated by a flashing green light next to the appropriate mode. You can change the mode at any time before the system turns on by pressing the appropriate button ('COOL' or 'FAN').

You can cancel the Timer function at any time by pressing the 'TIMER' button until all the timer lights go out.

In the event of a power outage

If the cooler is operating in 'COOL' or 'FAN' mode when power is interrupted, the cooler will resume in the same mode of operation when the power is restored.

If the cooler was in any 'TIMER' mode at the time of a power interruption, the cooler will remain off when power is restored.

Troubleshooting Guide

This guide is intended to aid the Installer or Service Technician in resolving simple problems.

CAUTION: TO PREVENT ELECTRICAL SHOCK AND/OR DAMAGE TO THE EQUIPMENT, DISCONNECT ELECTRICAL POWER TO THE SYSTEM AT THE MAIN FUSE OR CIRCUIT BREAKER BEFORE OPENING THE APPLIANCE CONTROL BOX, AND LEAVE POWER DISCONNECTED UNTIL AFTER THE COVER HAS BEEN SHUT AND SECURED.

Any testing performed on live conductors must be performed by qualified personnel only.

Observation	Possible Cause	Remedial Action
Cooler does not work / No LCD display on the Wall Control	Incorrect connection of wiring between Wall Control and Appliance Control Board.	Check the correct connection of the four wires at the Appliance Control Board and Wall Control. Ensure the correct wiring order at both ends, and that the terminals are correctly fitted and secured.
	Power Supply Circuit Breaker Off or <i>Appliance Control Box</i> not connected to the Power Supply .	Check the condition of Power Supply Circuit Breaker. Verify that the Circuit Breaker Switch is On. CAUTION: The following test to be carried out by qualified personnel only. Supply Voltage should be present between Supply L1 and Supply N terminals on the Appliance Control Board.
	Blown Fuse in the <i>Appliance Control Box</i> .	Check the condition of Fuse located on the Appliance Control Board. Replace blown fuse with the correct type.
	Appliance Control Board or Wall Control faulty.	After performing the above checks and with the power supply disconnected, ensure the Appliance Control Board is correctly installed, and close and secure the lid. Switch on the Power supply to the Appliance Control Box. Measure the DC Voltage at the Wall Control between the Black and Red terminals with the Wall Control still connected. If the measured voltage is very close to 3.5V DC and the LCD remains blank, the Wall Control is at fault. If the voltage is much less than 3.5VDC, disconnect the red wire and measure the voltage between the black and red wire. If the measured voltage rises to 3.5VDC, the Wall Control is faulty. If the measured voltage remains low, the Appliance Control Board is at fault.
Water Pump does not work	Poor connection of Water Pump terminals on the Appliance Control Board.	Verify that Water Pump leads are correctly connected to the Water Pump connection screw terminals on the Appliance Control Board.
	Incorrect connection of wiring between Wall Control and Appliance Control Board.	Verify that the colors of thermostat cable wiring match the color descriptions on Appliance Control Board. Check that all wires are not broken (open) and secure in both terminal blocks.
Fan Motor does not work / No Fan High and/or Fan Low Operation	Poor connection to Fan Motor terminals on the Appliance Control Board.	Verify that Fan Motor leads are correctly connected to the Fan Hi, Fan Lo, and N connection screw terminals on Appliance Control Board.
	Incorrect connection of wiring between Wall Control and Appliance Control Board.	Verify that the colors of thermostat cable wiring match the color descriptions on Appliance Control Board. Check that all wires are not broken (open) and secure in both terminal blocks.