OPERATION MANUAL

Complete Instructions for Installation and Operation

COOLCUBE 10

MAXPOWER
CORPORATION
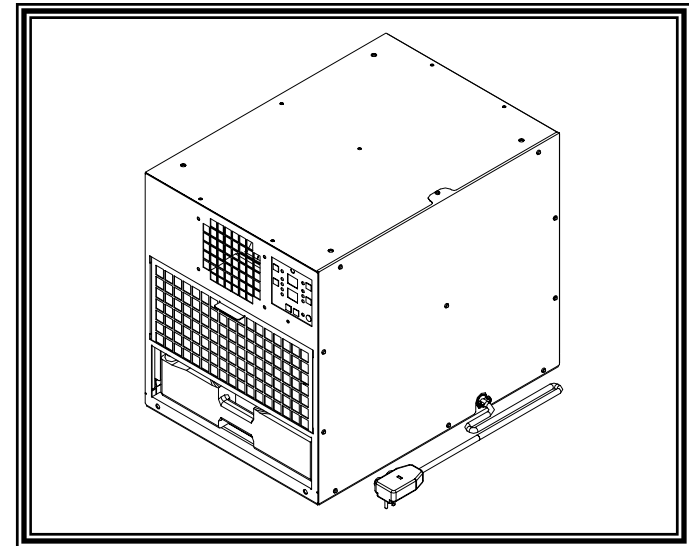
Move it. Hang it. Rack it. Stack it.

TABLE OF CONTENTS

Congratulations on purchasing the CoolCube 10 air conditioner. This manual explains how to install and operate the Cool Cube air conditioner. If you have any questions, please contact your CoolCube reseller or contact MaxPower at 800-576-3966 or sales@coolcube10.com.

Definition of Terms:

WARNING: Describes precautions that should be observed in order to prevent injury to the user during installation or unit operation.

CAUTION: Describes precautions that should be observed in order to prevent damage to the unit or its components, which may occur during installation or unit operation if proper care is not exercised.

NOTE: Provides additional information that facilitates installation or unit operation.

Technical Specifications

ITEM/FEATURES		CoolCube 10
Rating Conditions		
Dry Bulb		95° F
Wet Bulb (Humidity)		83° F (60%)
Specifications		
Power Frequency		60 Hz
Line Voltage		115 VAC Single Phase
Power Consumption		1.1 kW
Current Consumption		10.0 amps
Power Wiring		16 (3-core) AWG
Cooling Unit		
Cooling Capability		10,000 BTU/hr.
Blower		
Type of Fan		Centrifugal Fan
Airflow Volume:	Evaporator (High Speed)	325 ft^3/min
	Condenser	400 ft^3/min
Compressor		
Type		Rotary
Output		0.6 kW
Refrigerant Type		R-22
Refrigerant Charge		15.5 oz.
Safety Devices		
Compressor Overload Protector		Included
Fan Motor Protector		Included
Anti-Freezing Thermistor		Included
Full Drain Tank Switch		Included
Automatic Restart (power interruption)		Included
Compressor Time Delay Program		Included
Dimension & Weight		
W x D x H (in)		17.25" x 24" x 20"
Weight (lbs.)		110
Operating Conditions		
Inlet Air (Relative Humidity)		95° F, (60% or Less)
		65° F, (50% or Greater)
Control Device		
Temperature Control		Included
Remote Control		Included
12-Hour Timer		Included
Sleep Control		Included
Four Mode Speed Control		Included

Troubleshooting

Self-Diagnostic Codes

Self-Diagnostic Codes will be displayed on the Control Pad's ROOM TEMP LED display under the following conditions:

Code	Condition
FL	When the drain tank switch shuts off the unit (FULL TANK LED illuminates).
FS	When the evaporator thermistor disengages the compressor.
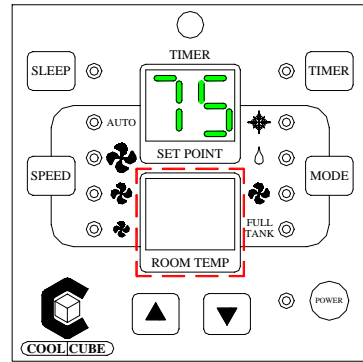
Check the following points before calling a qualified technician.

Symptom	Possible Cause	Remedy
Unit does not operate	1. Ground fault breaker tripped	Reset breaker
	2. Drain tank is full (FULL TANK LED will be illuminated)	Empty the drain tank
Insufficient cooling	1. Dirty/blocked air filters	Clean air filters
	2. Air inlet/outlet blocked	Clean air inlet/outlet
	3. Improper temperature setting	Set to desired position

Features

CoolCube 10 Features

- An electronic control panel allows the user to easily control the unit's operation
- (3) Function Modes: COOL, DEHUMIDIFICATION, and FAN ONLY
- (4) Fan Speed Modes (High, Medium, Low, or Automatic) in both Cool and FAN ONLY modes
- Digital display indicates the temperature SET POINT (Fahrenheit) in which the COOL Mode will operate in. This is the temperature the unit will try to maintain. The Temperature SET POINT can be adjusted between 65°F and 90°F by the Up and Down Arrows
- SET POINT Lock-in allows the user to enter a SET POINT temperature that cannot be changed when the arrow button is pushed
- Condensate drain TANK FULL indicator display
- Automatic restart feature enables the unit to return to the previous operating mode in the event of a loss of power
- 12-Hour timer will start or shut off the CoolCube 10 unit.
- SLEEP function enables the SET POINT temperature to be raised in two gradual steps. The SET POINT temperature will be raised by 1°F after the first hour, and another 1°F after the second hour. The CoolCube 10 will remain at that SET POINT temperature until the unit is powered off.

Inventory

After unpacking your CoolCube unit, please check to make sure you have the following items:

- CoolCube 10 Unit (1)
- Remote Control (1)
- Operation Manual / Warranty Card (1)
- Unpacking Instructions (1)

NOTE:

- If any of these items were not included in the box or appear damaged, please contact your CoolCube reseller for replacement.

IMPORTANT!

- The CoolCube 10 base module is used in conjunction with various accessories to adapt to your environmental needs. These accessories (i.e. Nozzle Kit, Portable Package, Rack Package, Hanging Package, etc) are sold separately to allow you to customize the CoolCube 10 module to your specific needs. Please contact your CoolCube reseller for information and availability.

Applications

Choosing the Application

Before installing the CoolCube, you must first choose the application that best fits the environment in which the CoolCube will be operating.

MOVE IT!

Portable Applications: Use the CoolCube 10 module in conjunction with our "Portable Package" for the ability to move the CoolCube 10 from room to room. The package includes wheels, a nozzle, and handles.

HANG IT!

Hanging Applications: Preserve valuable floor space by hanging the CoolCube 10 module. It may be hung easily above the floor or in a drop ceiling. Most hanging applications will use the CoolCube 10 module in conjunction with the "Hanging Package", which includes an evaporator plenum kit, (2) evaporator/condenser flange kits, and a condensate pump kit. All hanging installations must be completed by a qualified electrical technician to permanently connect the unit to a fixed location (hardwired).

RACK IT!

Rack-Mount Applications: Valuable for cooling small computer and server rooms. Using the "Rack Package" accessories will allow a CoolCube 10 to be mounted inside a 19-inch computer rack, occupying just 12U of valuable rack space. The package includes a shelf and a cold air rack diffuser.

STACK IT!

Stacking Applications: For high heat loads up to 30,000 Btu/hr or for the added security of cooling redundancy, the "Stacking Package" allows you to stack CoolCube 10 modules up to 3 high. The package includes a side brace and vibration mount feet to adapt the CoolCube 10 module to your environment.

Operation

REMOTE CONTROL

The CoolCube 10 comes standard with a remote control. The remote control operates all the features that are standard on the CoolCube's control pad. To operate the CoolCube with the remote control, the remote control must have a unobstructed view of the CoolCube's control pad.

FIGURE - A:

Illustrates LCD window figures that display during remote controller operation.

FIGURE - B:

Illustrates function buttons on the remote controller:

- ON/OFF – Power Button
- SLEEP – Sleep Control Button
- WIND – Fan Speed Button
- TEMP Up/Down Arrows – Set Point Control

FIGURE - C:

Illustrates function buttons when the top cover on the remote controller is open:

- ON/OFF – Power Button
- FUNCT - Mode Button: COOL, DEHUMIDIFICATION, FAN ONLY
- SET ON – Timer Control "ON"
- SET OFF – Timer Control "OFF"
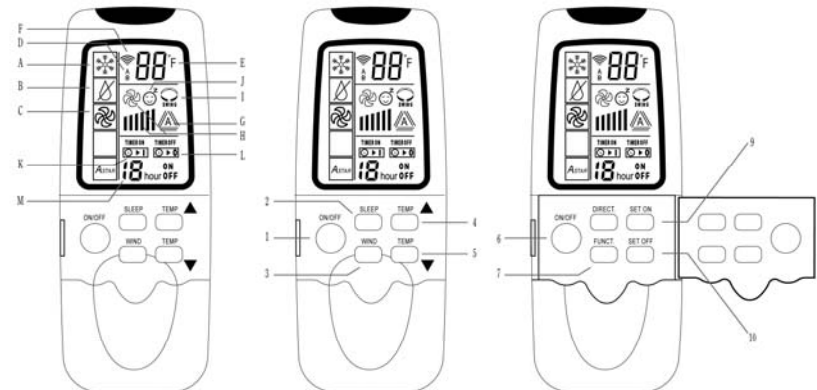- DIRECT – Not Applicable

FIGURE – A   FIGURE – B   FIGURE – C

Operation

Emptying the Drain Tank

During the COOL mode, condensate will accumulate in the drain tank. When the drain tank becomes full, the "FULL TANK" LED will illuminate along with an "FL" error code in the ROOM TEMP LED display. The unit will automatically shut off.

1. If you want to empty the drain tank, while the unit is in operation, press the POWER button to turn the unit off.
2. Pull the drain tank from the bottom of the unit.
3. Empty the drain tank into a nearby sink or drain.
4. Replace the drain tank back into the bottom of the unit, making sure that it is properly in place.
5. Press the POWER button to restart the unit.

Remove Full Drain Tank

CoolCube 10 Unit
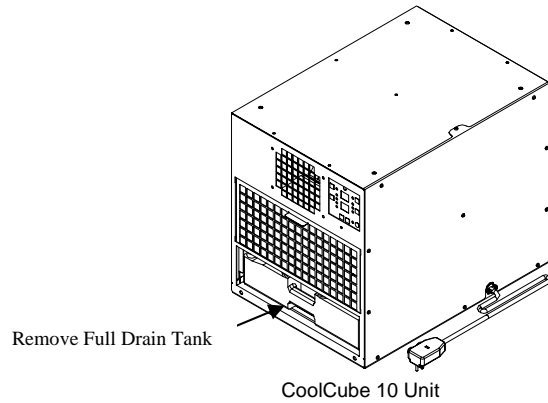
DRAIN PUMP KIT (Optional)

A drain pump kit (UCP) is available to allow continuous operation and eliminate the need for a drain tank.

- When the water collects to level (A) in the pump reservoir, the drain pump begins to operate and discharge the water.
- When the water level drops below level (B), the drain pump stops.

NOTE:

If the pump's discharge line is pinched/blocked or if the pump is not operating properly, the water level will rise to level (C) and the pump will turn off the unit. The "FULL TANK" LED will illuminate and "FL" will display in the ROOM TEMP display.

(C)

(A)

(B)

Drain Pump

Remove Drain Tank

Install Drain Pump
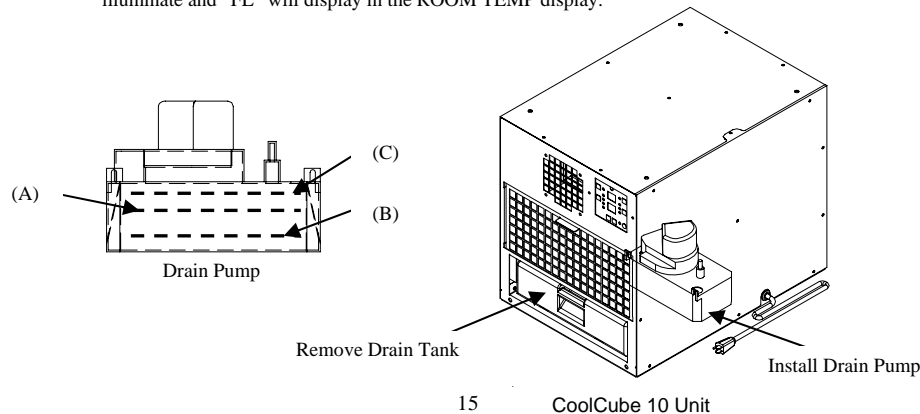
CoolCube 10 Unit

Installation

General Precautions:

WARNING:

- Do not tip the CoolCube 10 on its side. If the CoolCube 10 has been on its side, stand it upright and wait at least 2 hours before starting up the air conditioner. Failure to have the CoolCube 10 upright for at least 2 hours after the unit has been on its side will result in damage to the CoolCube 10
- If the power cord or plug is damaged, repair should only be performed by qualified electrical personnel
- Do not connect/disconnect the power cord or attempt to operate buttons with wet hands. This could result in electrical shock

CAUTION:

Following are some precautions to consider before choosing your installation site. Please review carefully as improper installation may result in personal injury or damage to the unit.

- Do not use the unit in areas where leakage of flammable gas may occur
- Do not use the unit in an atmosphere of excessively corrosive gas or vapor
- Do not use in areas where the temperature is outside the allowable operating range: Below 65°F 50%RH and Above 95°F 60%RH
- Do not install the unit in sloping areas. The unit may move or topple over even if the casters are set to the LOCKED position
- Install the unit in areas that can withstand the weight of the unit. The CoolCube 10 unit weighs approximately 130 lbs. (when the drain tank is full of water)
- Allow 12 inches of unobstructed airflow for both the air inlets and outlets
- The AC outlet (115 VAC Single Phase, 60 Hz) needs to be rated at 15A or higher. Do not share outlet with any other instrument or equipment
- Check the prongs and surface of the power cord plug for dust/dirt. If dust and/or dirt are present, wipe off with a clean, dry cloth
- Check the power cord, plug and prongs for damage or excess play. If any damage or excess play is found, contact your CoolCube reseller for repair
- Confirm the attachment plug is lit when it is plugged into an appropriate outlet. If the plug is not lit, press the reset button the side.

NOTE:

- Make sure the AC outlet is free of dirt, dust, oil, water, or any other foreign matter
- The CoolCube 10 model is equipped with an approved NEMA plug configuration (5-15P). The appropriate outlet must be used for this plug type

Installation

Portable Applications:

Because individual applications vary, the CoolCube 10 allows the user to customize the unit with accessories to meet the requirements of their particular environment. Choose from the following accessories or the "Portable Package":

Portable Accessories:

- Wheel Kit (Figure 1)
  - Portable applications
- Feet Kit (Figure 2)
  - Semi-permanent applications
- Handle Kit (Figure 1 & 2)
  - To facilitate moving and lifting the CoolCube 10 unit

Cold Air Distribution Accessories:

- Six-Inch Nozzle Kit (Figure 1)
  - Concentrated short-range spot-cooling
- Diffuser Kit (Not Shown)
  - Diffused spot-cooling
- Six-Inch Flange Kit (Figure 2)
  - Allows ducting to be installed on the unit for long-range spot cooling requirements

Portable Package (See Figure 1):

- Wheel Kit
- Handle Kit
- Six-Inch Nozzle Kit

Attaching Accessories – (See Detailed Accessory Instructions)

- Attach the Portable Accessories (casters/feet) to the base panel of the CoolCube 10 unit. See Figure 1 & 2
- Attach the Handles to the top panel of the CoolCube 10 unit. See Figure 1 & 2 (Optional)
- Attach the Cold Air Distribution Accessory (duct/diffuser/flange) to the front panel. See Figure 1 & 2

Operation

Operating Modes

The CoolCube operates in 3 modes; FAN ONLY, DEHUMIDIFICATION, AND COOL. When in FAN ONLY MODE the unit circulates the surrounding air. When in the DEHUMIDIFICATION mode the unit will focus on removing moisture from the room. When in the COOL mode, the compressor is engaged and cool air is circulated

- **COOL Mode**
  The CoolCube will operate in FAN ONLY mode for approximately 90 seconds before the compressor engages (compressor time delay program is 90 +/- 15 seconds).

- **DEHUMIDIFCATION Mode**
  The CoolCube will operate in the COOL Mode for 10 minutes with the Low Speed Fan. Next the CoolCube will operate in the FAN ONLY mode for 10 minutes with the Low Speed Fan. The cycling will continue to repeat.

- **AUTO Fan Control**
  Automatic Speed will change the fan speed automatically by comparing the SET POINT with the ROOM TEMP. When the ROOM TEMP is 10°F above the SET POINT, the unit will operate in High Speed. When the ROOM TEMP is 6°F above the SET POINT, the unit will operate in Medium Speed. Finally, when the ROOM TEMP is 4°F above the SET POINT, the unit will operate in Low Speed.

- **Temperature Control**
  The room temperature thermistor allows the unit to automatically switch between the COOL and FAN ONLY modes. This is dependent upon inlet air temperature versus "SET POINT" temperature.

- **LOCK-IN Temperature Control**
  Lock-in a temperature SET POINT by pressing the UP & DOWN ARROW buttons simultaneously for 3 seconds, a dot on the display will flash and illuminate when the temperature is fixed. To unlock the temperature SET POINT press the UP & DOWN ARROW buttons simultaneously for 3 seconds, and the dot on the display will disappear.

- **TIMER Control**
  The TIMER Control turns the unit ON or OFF within a 12-hour period. If the unit is OFF press the TIMER button until the desired hour (1 through 12) is set for the unit to TURN ON. If the unit is ON, press the TIMER button until the desired hour (1 through 12) is set for the unit to TURN OFF. Once the TIMER Control is set to turn ON or OFF the unit, the TIMER LED will illuminate.

- **Sleep Control**
  The CoolCube can be operated by the SLEEP Control by pressing the SLEEP button, which illuminates the LED. The SLEEP Control raises the SET POINT temperature by 1°F after the first hour, then raises the SET POINT temperature by another 1°F after the second hour. After the second hour, the SET POINT temperature will remain stable.

- **Fan Mode Control Dip Switch**
  The Fan Mode Control DIP Switch determines whether the FAN will continue to operate or stop when the compressor cycles off. ("SET POINT" temperature equals inlet air or room temperature). The unit has been preset at the factory for continuous fan operation.

Operation

Control Panel
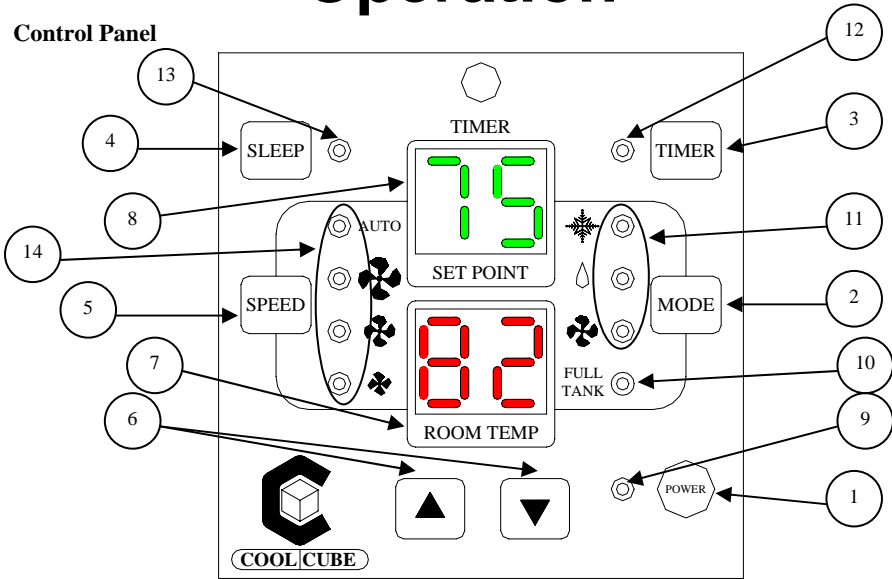
1. POWER Button — Turns the unit ON/OFF.
2. MODE Button — Select operation mode: COOL, DEHUMIDIFICATION, and FAN ONLY.
3. TIMER Button — Allows the user to set the 12-hour timer.
4. SLEEP Button — Allows the user to start the SLEEP function.
5. SPEED Button — Select fan speed: Low, Medium, High, and Automatic.
6. ARROW Buttons — Increases/decreases the temperature set point; also used to set 12-hour timer.
7. ROOM TEMP Display — Indicates the current room temperature; also displays self-diagnostic codes.
8. SET POINT Display — Indicates the current temperature set point; also displays 12-hour timer.
9. POWER LED — Illuminates to indicate compressor on; Blinking to indicate 90-second compressor delay.
10. FULL TANK LED — Illuminates when the drain tank is full.
11. MODE LEDs — Illuminates to indicate which operation mode: COOL, DEHUMIDIFICATION, and FAN ONLY.
12. TIMER LED — Illuminates when TIMER is set.
13. SLEEP LED — Illuminates when SLEEP function is set.
14. SPEED LED — Illuminates to indicate which fan speed: Low, Medium, High, and Automatic.

Operating in Cool Mode

- Operate in COOL mode by pressing the POWER and MODE button until the SNOWFLAKE LED is illuminated

- Change the fan speed by pressing the SPEED button. The appropriate fan LED will illuminate when the unit is operating in Low Speed, Medium Speed, High Speed, or Automatic Speed

- Change the temperature SET POINT by pressing the UP & DOWN ARROW buttons

Operating in Dehumidification Mode

- Operate in DEHUMIDIFICATION mode by pressing the POWER and MODE button until the WATER DROP LED is illuminated

- In the DEHUMIDIFCATION mode the air conditioner will work on removing moisture from the air

Operating in FAN ONLY Mode

- Operate in FAN ONLY mode by pressing the POWER MODE button until the FAN LED is illuminated

- During the FAN ONLY mode, the unit will operate in different fan speeds: Auto, High, Medium, and Low

Installation

Portable Applications:

Attaching Accessories – (See Detailed Accessory Instructions)

- Attach the Portable Accessories (casters/feet) to the base panel of the CoolCube 10 unit. See Figure 1 & 2

- Attach the Handles to the top panel of the CoolCube 10 unit. See Figure 1 & 2 (Optional)

- Attach the Cold Air Distribution Accessory (duct/diffuser/flange) to the front panel. See Figure 1 & 2
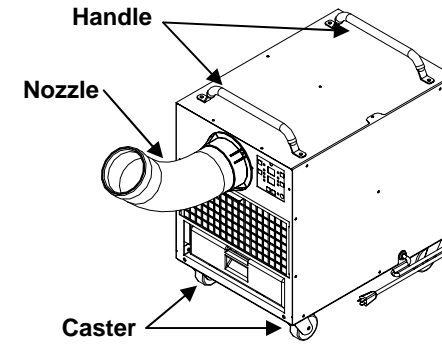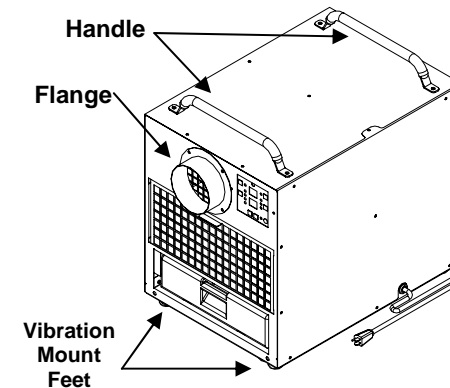

Figure 1

Figure 2

Installation

Hanging Applications – Permanently Connected:

As the environment dictates, the CoolCube 10 unit may be hung above the floor in an industrial setting or in a drop ceiling in an office setting. The CoolCube 10 can be hung from a building's structural beam by using a 5/16" threaded rod on the unit's (4) corners, with 14 gage uni-strut under the CoolCube, or with 14 gage uni-strut bolted to the top of the CoolCube. A qualified electrician must remove the existing power cord of the CoolCube 10, and follow proper codes/instructions to permanently connect (hardwire) the unit.

Hanging Hardware:

- Threaded Rod and/or 14 gage Uni-Strut and Threaded Rod (Figure 3)

Cold Air Distribution Accessories:

- Six-Inch Nozzle Kit (Not Shown)
  - Concentrated short range spot cooling.
- Six-Inch Flange Kit (Figure 3)
  - Allows ducting to be installed on the unit for long range spot cooling requirements.

Hanging Package:

- Evaporator Plenum Kit
- (2) Flange Kit
- Condensate Pump Kit

WARNING:

- Removing the power supply cord and permanently connecting the CoolCube 10 unit should be performed only by a qualified electrician.
- The CoolCube 10 unit (110 lbs) is heavy. A minimum of two people are required to lift the CoolCube 10.

CAUTION:

- When hanging and permanently connecting the CoolCube 10 all applicable local/state/federal building codes must be followed. The structural beam being used must be able to properly support the weight of the CoolCube 10 (110 lbs).

NOTE:

- When mounting the CoolCube 10 inside a ceiling plenum above an office space, additional
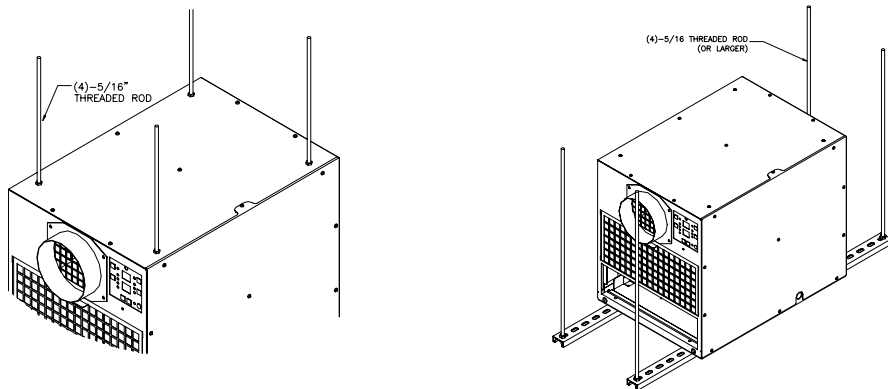

Figure 3

Installation

Stacking Applications:

Stacking the CoolCube Units (See Detailed Accessories' Instructions)

- Attach the Wheel Kit to the base panel of Unit 1. See Figure 7 & 8
- Attach the Stack Kit to the side panel of Unit 1 using the top (2) side panel screws. See Fig 7 & 8
- Attach the Feet Kit to the base panel of Unit 2. See Figure 7 & 8
- Attach the Handle Kit to the top of Unit 2. See Figure 3. (Optional)
- Remove Unit 2's bottom (3) screws on the side panel. See Figure 7 & 8
- Using (2) people lift Unit 2 so the feet are squarely on top of unit 1 until the bottom (3) holes of unit 2's side panel are lined up with the top (3) holes of the Stacking Kit. See Figure 7 & 8
- Using the (3) screws attach Unit 2 to the Stacking Kit. See Figure 7 & 8

Cold Air Distribution Accessory

- Attach the Cold Air Distribution Accessory (nozzle/diffuser/flange) to the front panel with the enclosed (4) screws on both Unit 1 & Unit 2. See Figure 7 & 8
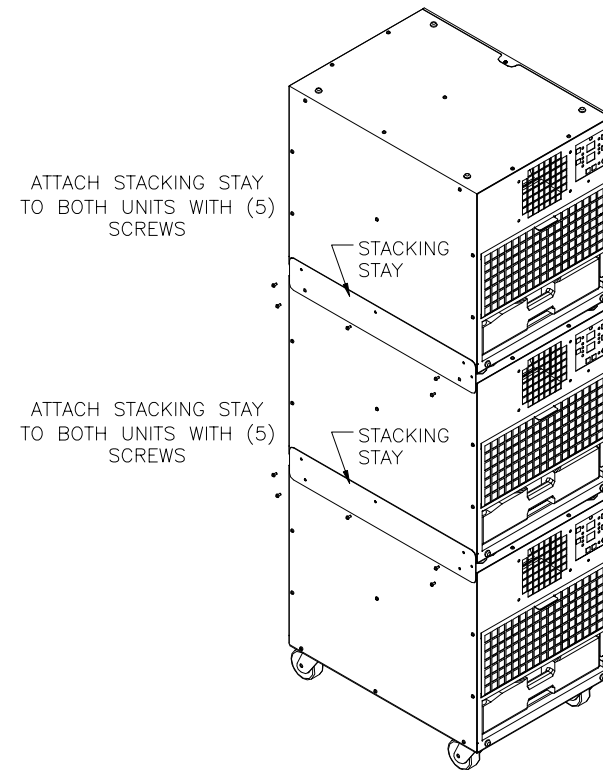

Figure 8

Installation

Stacking Applications:

Two or three CoolCube 10 units are required when redundancy is critical, cooling large areas, or high heat loads. The CoolCube 10 units can be stacked on top of each other to produce a capacity of 20,000 or 30,000 BTU/hr, while maintaining a small footprint area. To facilitate the stacking of the CoolCube units, accessories are required. Additional accessories can be used to customize the CoolCube 10 units to ease movement and cold air distribution.

Stacking Accessories:
- Wheel Kit (Figure 7)
- Feet Kit (Figure 7)
- Stack Kit (Figure 7)

Movement Accessory:
- Handle Kit (Figure 7)
  - To facilitate moving and lifting the CoolCube 10 unit.

Cold Air Distribution Accessories:
- Six-Inch Nozzle Kit (Not Shown)
  - Concentrated short range spot cooling.
- Diffuser Kit (Not Shown)
  - Diffused spot cooling (Not recommended for bottom CoolCube 10 unit).
- Six-Inch Flange Kit (Not Shown)
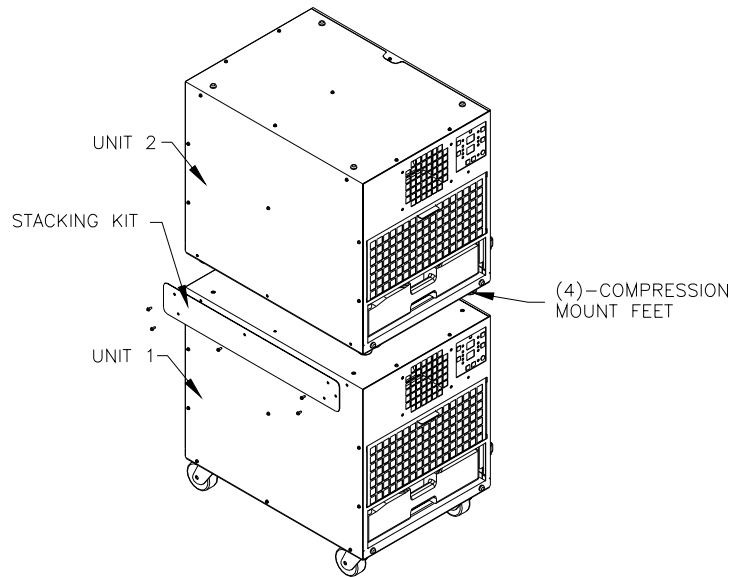 - Allows ducting to be installed on the unit for long range spot cooling requirements.

UNIT 2

STACKING KIT

(4)-COMPRESSION MOUNT FEET

UNIT 1

Figure 7

Installation

Hanging Applications – Permanently Connected:

Hanging the CoolCube 10 (See Detailed Accessory Instructions/Applicable Building Codes)
- Attach the (4) Threaded Rods to the top panel of the Cool Cube 10. See Figure 3

OR
- Attach 14 gage Uni-Strut to the bottom of the CoolCube with (4) Threaded Rods. See Figure 3

OR
- Attach 14 gage Uni-Strut to the top of the CoolCube with (4) Threaded Rods. Not Shown
- Attach the condensate tubing to remove the condensate by gravity. Not Shown. (Optional)
- Install the condensate pump accessory to remove the condensate. Not Shown. (Optional)

Cold Air Distribution Accessory
- Attach the Cold Air Distribution Accessory (nozzle/flange) to the front panel. See Figure 3

Permanently Connecting the CoolCube 10 (Performed by a qualified electrician)
- Remove the power cord and strain relief from the CoolCube 10. See Figure 4.
- Install ½" Conduit & a UL Recognized Bushing through the 7/8" hole which was being used for the power supply cord. See Figure 5. The (3) conductors in the conduit must be a minimum of 14 AWG, and be connected to an AC circuit (115 VAC Single Phase, 60 Hz) that is rated at 15A or higher.
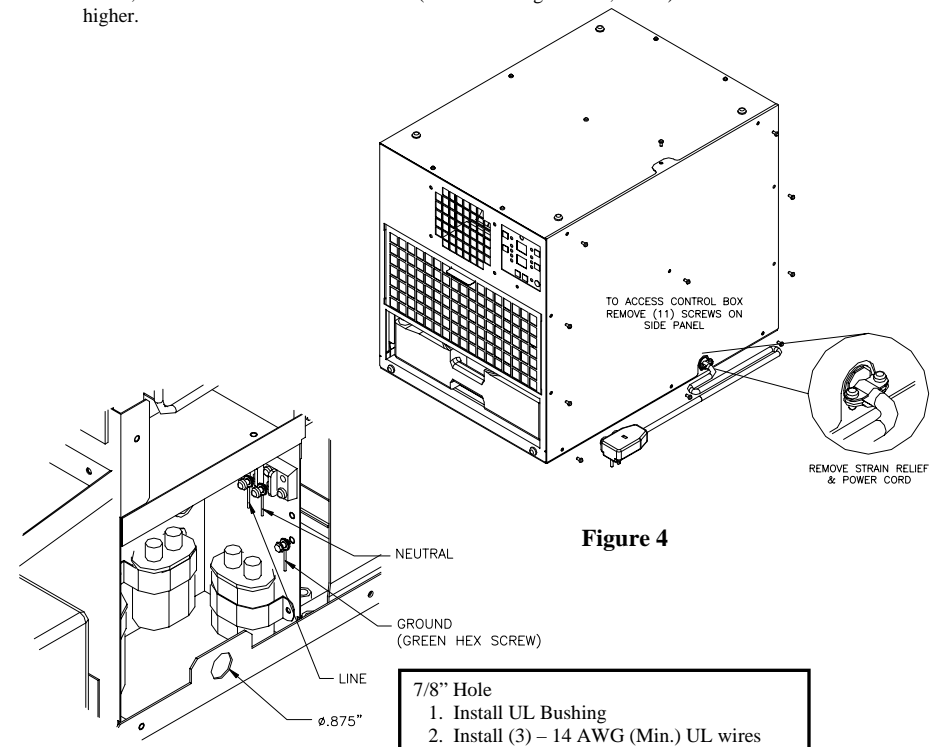

TO ACCESS CONTROL BOX REMOVE (11) SCREWS ON SIDE PANEL

REMOVE STRAIN RELIEF & POWER CORD

Figure 4

NEUTRAL

GROUND (GREEN HEX SCREW)

LINE

ø.875"

7/8" Hole
1. Install UL Bushing
2. Install (3) – 14 AWG (Min.) UL wires
3. Install ½" Conduit

Figure 5

Rack-Mount Applications

19-Inch
Computer
Rack

Computer
Equipment

CoolCube 10

Diffuser Kit

Rack Kit

Figure 6