

# CUBE<sup>LT</sup>

## User Manual

CUBE<sup>LT</sup>





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## Warning / Caution / Note Definition

The words WARNING, CAUTION and NOTE have special meanings and should be carefully reviewed.



**WARNING** Alerts the reader to a situation which, if not avoided, could result in death or serious injury. It can also describe potential serious side effects and their safety risks.



**CAUTION** Alerts the reader to a potentially hazardous situation which, if not avoided, may result in minor or moderate injury to the user or damage to the product or other property. This includes the special precautions necessary for the safe and effective use of the device and the precautions necessary to avoid damage to a device which may occur as a result of use or misuse.

**NOTE :** Provides special information to facilitate maintenance or clarify important instructions.

### WARNING

- DO NOT operate the unit through an electrical outlet and/or wall outlet that is damaged or improperly secured to the wall. If the supply cord is damaged, it must be replaced by the manufacturer or an authorized service agent.
- DO NOT cover or obstruct the air intake and exhaust of the CUBE<sup>LT</sup>, Water Cooler and CUBE-RC4LT while in use.
- This appliance is not intended for use by children. Children should be supervised and should not play with or around the appliance.
- DO NOT place objects or sit on system modules..
- Always switch off and unplug the appliance when cleaning or servicing.
- DO NOT run power cord under carpet or rug.
- Use caution to avoid tripping over system wires or tubing.

- DO NOT use in areas where gasoline, paint or other flammables are stored.
- Basic safety precautions should always be taken when using electrical appliances.
- DO NOT use an extension cord with this appliance.
- Do not insert fingers or other foreign bodies inside the air grilles. This could cause accidents due to the rotation of the blades.
- To ensure correct operation of the appliance in safe conditions, it is absolutely forbidden to expose it to atmospheric agents and direct heat sources. The temperature in the rooms where the appliance is installed must be between 10°C and 38°C (50°F - 100°F).

## CAUTION

- If service is required, contact an authorized service agent.
- DO NOT place objects or sit on system modules.
- Install the Water Cooler in a well ventilated area.
- Unplug the appliance when stored or not in use.
- Use caution to avoid tripping over system wires or tubing.
- This appliance has been manufactured for the air conditioning of a wine cellar and must not be used for any other purpose.
- STRICTLY use the installation hardware provided by The Wine Square. DO NOT attempt to install or connect this device using any methods other than those provided in this manual. Improper installation could void any existing warranty.

## Introduction

This manual will help you operate or maintain the CUBE<sup>LT</sup> wine cellar air conditioning unit. Read this manual carefully before installing, using or servicing this product.

The CUBE<sup>LT</sup> wine cellar air conditioner is the most advanced compressor system on the market. Specially designed for shallow glazed wine cellars where the air conditioning unit is located directly above the bottles. It uses a water loop refrigeration which reduces thermal shock while preventing air drying. This three-module unit allows for easy and flexible installation for residential or commercial projects.

Although the air conditioning system has great importance in maintaining adequate conditions for serving or storing wine, it is not the only element to consider. It is very important to ensure that the wine cellar is adequately insulated and sealed against humidity before installing the CUBE<sup>LT</sup>.

## Conditions In The Wine Cellar

The CUBE<sup>LT</sup> wine cellar cooling system is a system designed to maintain a temperature in the wine cellar between **54°F-65°F [12°C-18°C]**. It does not allow to obtain very cold temperatures as for the service of champagnes and certain white wines. Its air conditioning mechanism is designed to reduce the large temperature differences affecting the wine between each stop/start of the compressor. It also reduces air drying in the wine cellar that can cause corks to deteriorate.

Studies show that the temperature of a wine cellar should be between **10°C and 18°C** with a humidity between **50%-80%**. The lower the cellar temperature, the slower the wine will age. A temperature that is too low will block its ageing.

The Wine Square recommends a temperature setpoint of **14°C (57°F)** with this device, which corresponds to both an aging temperature and a tasting temperature for most red wines.

## Description of Components

The CUBE<sup>LT</sup> is a “split” cooling system made up of three components. It allows the noisy element (the compressor) to be placed at a distance from the wine cellar.

- 1- CUBE<sup>LT</sup> CONTROL BOX
- 2- CUBE<sup>LT</sup> WATER CHILLER
- 3- RC4LT DIFFUSER

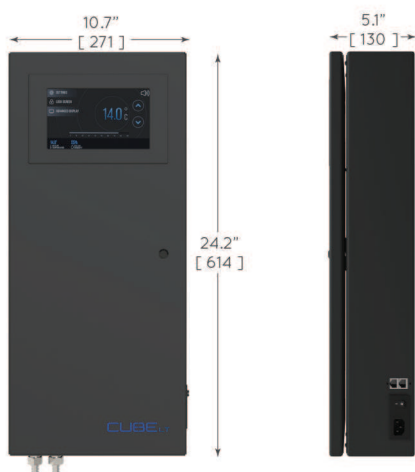


## CONTROL BOX

The CUBE<sup>LT</sup> Control Box is the unit managing the system. Equipped with a high-resolution 7" touch screen, it allows the display and simple adjustment of the conditions of the wine cellar. It provides the electrical power and the chilled water to the RC4-LT module in the wine cellar by means of a network wire and two 1/2" PEX pipes. The CUBE<sup>LT</sup> Control Box must be connected to a closed circuit chilled water source coming either from the CUBE<sup>LT</sup> Water Chiller or from a plate heat exchanger connected to the chilled water of the building. Very ecological and safe, it uses no refrigerant gas and therefore always recirculates the same water. It is normally installed in a garage or mechanical room.

### SPECIFICATIONS

Voltage.....	120V 60Hz
Amperage.....	0.75 A
Power.....	90W
Plug.....	NEMA 5-15P
Inlet / Outlet.....	1/2" PEX
Maximum Water T°.....	48°F (9°C)
Minimum Water T°.....	32°F (0°C)
Flow Rate.....	20 L/min
Internet Connection.....	RJ45



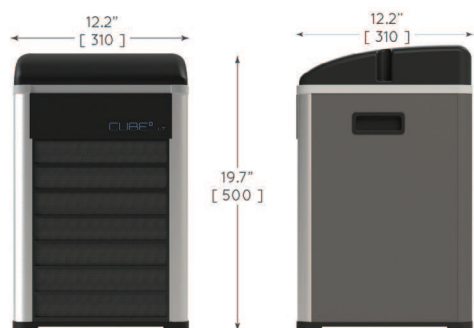


## WATER CHILLER

The CUBE<sup>LT</sup> Water Chiller provides the chilled water necessary for the proper functioning of the system. Italian designed, this small, robust and eco-friendly unit uses R290 as refrigerant, a non-toxic gas with zero ODP (Ozone Depletion Potential) and very low GWP (Global Warming Potential). This chiller is installed near the CUBE<sup>LT</sup> Control Box in a mechanical room or garage usually. Its sound level, similar to that of a dehumidifier, means that it is not recommended for use in an apartment or condo without a mechanical room.

### SPECIFICATIONS

Voltage.....	120V 60Hz
Amperage.....	3.6 A
Power Consumption.....	330W
Cooling Power.....	400W
Plug.....	NEMA 5-15P
Inlet/Outlet Connection.....	1/2" PEX
Weight.....	47lb (21.4 kg)
Minimum Water T°.....	41°F (5°C)
Refrigerant.....	R290
Ambient Operatoing T°.....	50°F - 100°F (10°C-38°C)
Certification.....	UL / CE



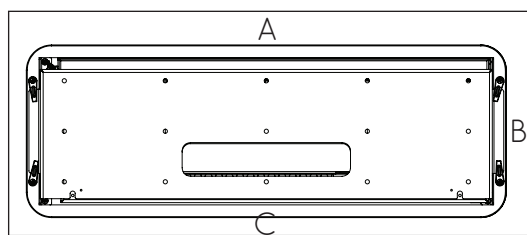
## RC4LT DIFFUSER

The RC4LT is the cooling unit of the system positioned at the ceiling of the wine cellar. It pumps the heat in and carries it to the water cooler. It is equipped with a condensate pump to evacuate the condensation outside the wine cellar. The RC4LT must be installed horizontally at the highest point of the wine cellar. For a large wine cellar or a particular geometry, it may be necessary to install more than one RC4LT, they are then connected in series on the communication and water supply level.

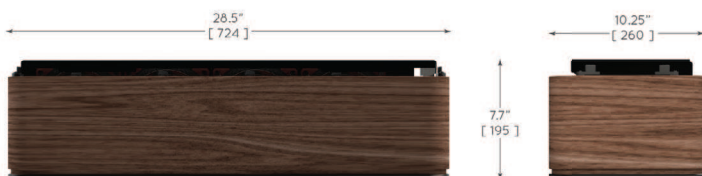
### SPECIFICATIONS

Power / Communication.....	RJ45
Cooling Power.....	400W
Drain Connection.....	1/2" PEX
Inlet/Outlet Connection.....	1/2" PEX
Minimum Clearance	
Front (A).....	1.75"
Side (B).....	1"
Back (C).....	1"
Under the device.....	8"

Back



Front



## Minimum Requirements

In order to ensure proper operation of the system as well as to maintain the warranty, it is important that the wine cellar is built according to the rules of the art. These requirements remain the same, regardless of the size of the wine cellar.

### GENERAL

- Vapor barrier or moisture barrier on all surfaces (walls / floor / ceiling)
- Airtight

### WALLS

- Minimum insulation of R15 or U0.06

### FLOOR

- Minimum insulation of R7.5 or U0.13

### CEILING

- Minimum insulation of R7.5 or U0.13

### GLASS

- Minimum insulation of R4.5 or U0.22 with LOW-E protection

In addition to voiding the warranty on the Water Chiller failure to comply with these conditions exposes you to, but is not limited to:

- Condensation on wine cellar glasses
- Poor humidity control in the wine cellar
- Reduced compressor life
- Bad conditions for aging wine
- Compressor frequent stop/start
- A lack of system power to reach the target temperature



**CAUTION** Insulation under a concrete slab does not count as floor insulation. Unless the slab of the wine cellar is independent from the rest of the building and has a thermal break of at least 1". Otherwise, the thickness of the concrete slab acts as a thermal bridge and injects heat around the entire perimeter of the wine cellar.

## Location Selection

Before starting the installation of the system, it is important to select the location where the various components will be installed. Although air conditioning systems push cold air when they are in use, these devices work more to remove heat, colder air is only a result. The nuance seems small, but it is very important when evaluating the placement of the components of the air conditioning system. Indeed, assuming that the system is a heat pump:

**THE RCULT :** This unit seeks to remove heat from the wine cellar, so it will need to be located at the hottest location in the wine cellar, the ceiling. Depending on the configuration of the room, it can be either in the center or above the door. A clearance of at least 8" must be kept under the appliance to allow the service of this unit.

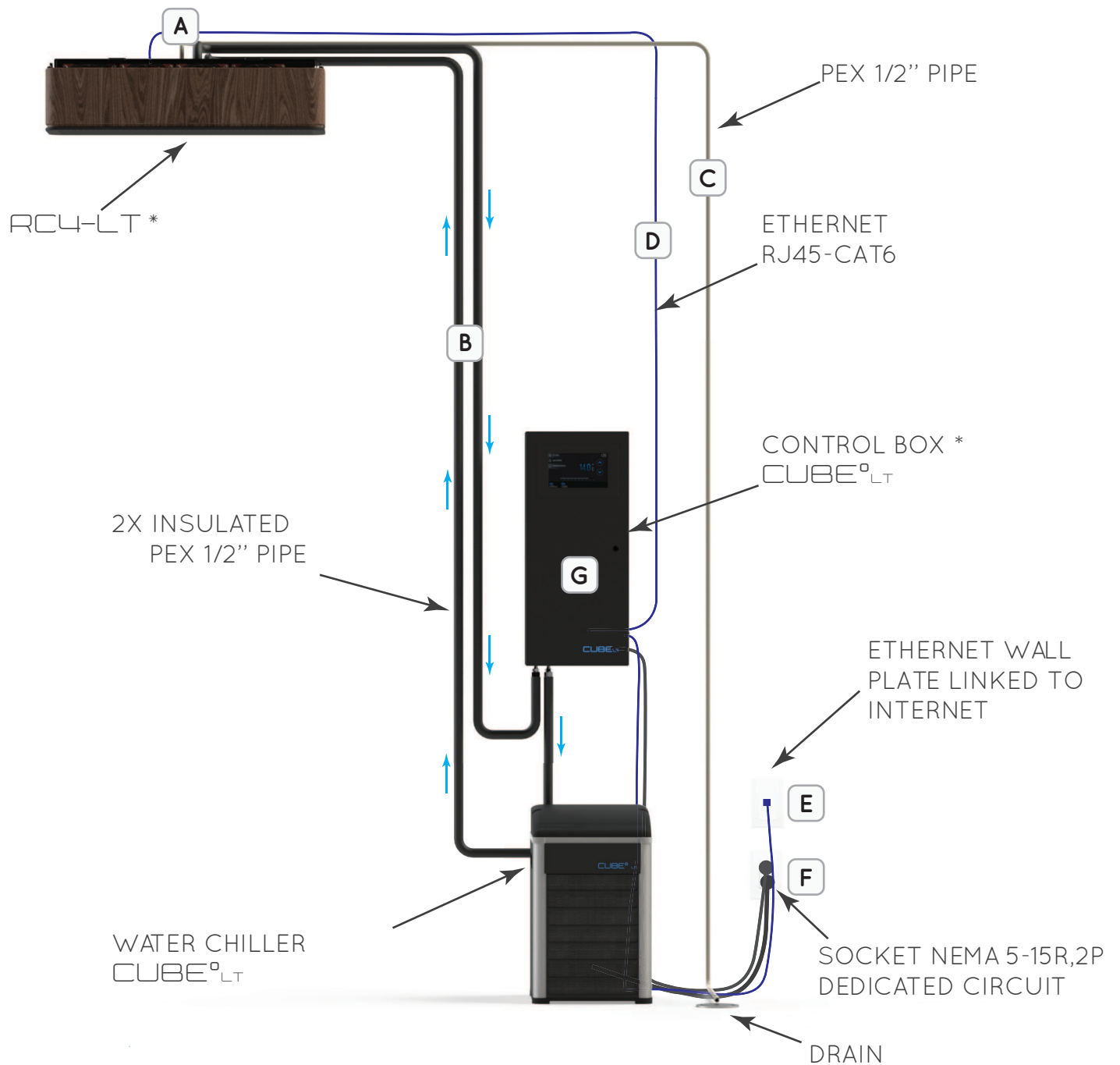
**THE WATER CHILLER:** The compressor system used to produce cold water for the wine cellar, this is the unit that will reject the heat removed from the wine cellar. It can be located up to 30 meters (100 feet) from the wine cellar. This unit could experience reduced power if it is in an overheated room. Heat rejection will then be more difficult. It is therefore necessary to find a well-ventilated location that will maintain an annual temperature between 50°F and 100°F (10°C - 38°C). **This unit is not designed for outdoor installation.** This unit is also the “noisy” module of the system. It emits a noise comparable to a window air conditioner. The ideal location for this module is the mechanical room or the garage.

**THE CONTROL BOX:** The control box can be located anywhere between the water chiller and the wine cellar. It is usually installed above the water chiller.

## Installation

The installation of the CUBE<sup>LT</sup> is normally done in two steps, one before the walls are closed and one when the system is put into operation. The first step is to install the pipes, communication cable and wood blocking necessary for the system to work properly in the walls. This installation procedure uses PEX, a flexible and easy to install product to connect the different units. The system can be installed with other types of piping. Contact The Wine Square if you would like another type of conduit for installation. Refer to the regulations in your area/building before using plastic conduit such as PEX.

ROUGH-IN

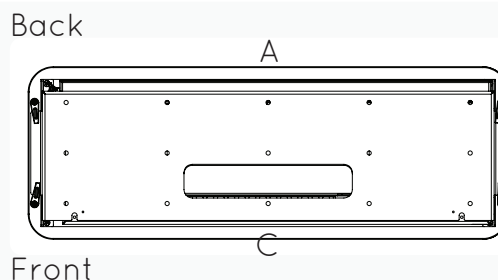


- A** Position RC4LT in the wine cellar. It is important to consider the thickness of the insulation, finishing material and glass envelope when locating the final location of the unit.

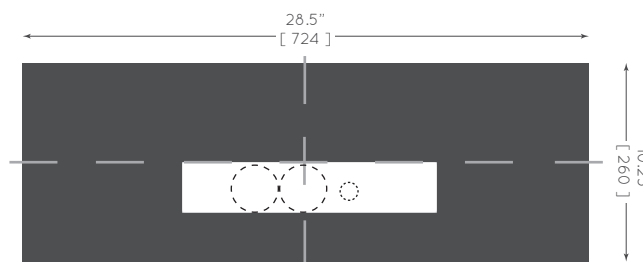
Check that the clearance necessary for the correct operation of the unit is respected.

Minimum Clearance

Front (A).....	1.75"
Side (B).....	1"
Back (C).....	1"



Install a wood blocking at least the size of the unit and at least 5/8" thick at the location of the unit. Provide an opening of maximum 2"x 10" tangent with the middle of the location of the unit, for the passage of the tubes. Generally two holes of 1-3/4 " and one of 0.75 " are sufficient.



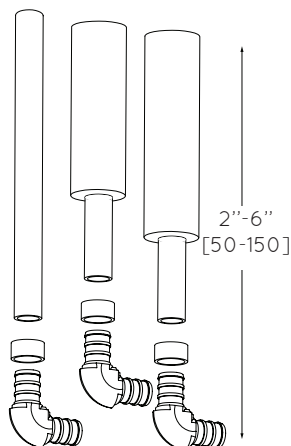
- B** Install 2 x 1/2" insulated PEX pipes between the location of the control box (usually located in the garage or mechanical room) and the outlet of the RC4LT unit (opening made in the wood blocking installed previously) .

Put "duct tape" type adhesive tape between the different sections of insulation (joint) covering the tubes.

**NOTE :** It is preferable to use PEX tube supports rather than elbows when a 90° is required.

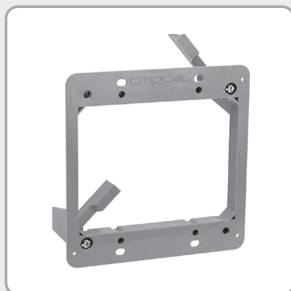


- B'** At the ceiling in the wine cellar, leave between 2" and 6" of tubing hanging from the ceiling and install an elbow on each conduit.



**NOTE :** It is preferable not to exit all the tubes at the same height to facilitate the connection of the system during its final installation. It is also possible to hang longer tubes at this stage and install the elbows only during the final installation of the RC4LT after the walls are closed.

**NOTE :** To bring the conduits out of the wall in the mechanical room in an aesthetic way, it is possible to use a low voltage 2-gang wall bracket.



- C** Install 1/2" non-insulated PEX pipe between a drain (the drain can be in the garage or mechanical room since the unit is equipped with a condensate pump) and the outlet of the RC4LT unit.

Install an elbow at the RC4LT location as in step B'. It is best to connect the other end of the tube to an open drain (e.g. floor drain) to prevent the risk of odor coming from the sewers in the wine cellar. Connecting to a drain using a "P-trap" principle to prevent odors is not effective, as the system may never generate condensation if the humidity in the house is well managed, the "P-trap" would thus end up drying up.

- D** Install an RJ45 network wire with minimum 23AWG wires between the RC4LT and the control box location. Allow a minimum of 36” of wire to hang in the wine cellar and the length needed to connect to the right side of the control box.



**NOTE :** It is more prudent at this stage to run a second RJ45 wire away from the first. In the event that the first is damaged by a nail or screw when closing the walls, the second can be used.

- E** Install an RJ45 network socket connected to the internet near the device. The CUBE<sup>LT</sup> uses a wired connection to connect to the internet.
- F** Have a professional install a NEMA 5-15R, 2-pole electrical outlet on a dedicated circuit for powering the control box and the water cooler.
- G** Install a nailing backing on the wall at the location of the control box. The nailing bottom must be at least 36” high and 10” wide. The top of the bottom nailing panel must be installed 60” above the ground.

**NOTE :** Before closing the walls, take the time to review the “Check List” in the appendix to make sure that nothing has been forgotten.

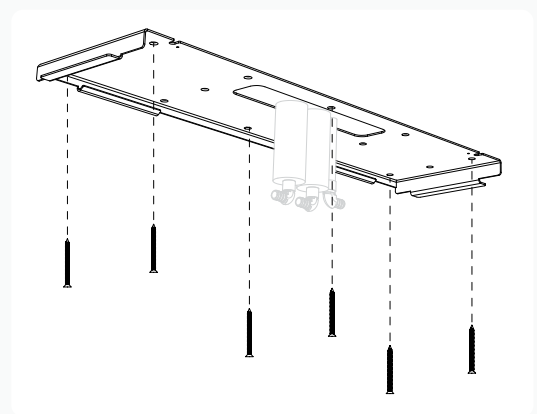


## FINAL INSTALLATION

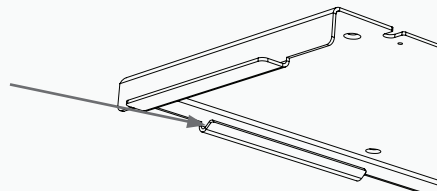
This installation step must be carried out at the very end of the work when there is no longer any dust production. Otherwise, dust could damage the device and reduce the cooling capacity of the system. In the event that construction steps are required following the installation of the system, please unplug the device before starting work.

### FINAL INSTALLATION RC4LT

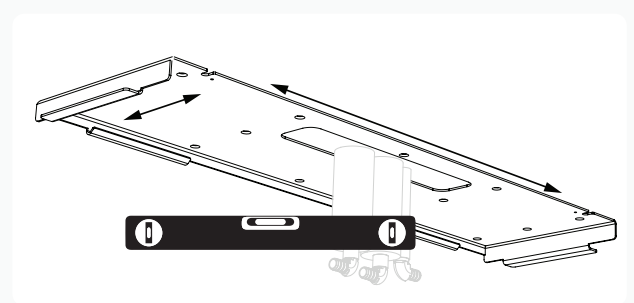
- 1 Locate the RC4LT in the wine cellar. Using # 8 flat-head wood screws, long enough to anchor into the nailing base without risking drilling the PEX tubes installed in the ceiling, secure the RC4LT backing plate. Take the time to make sure the plate is parallel with the walls.



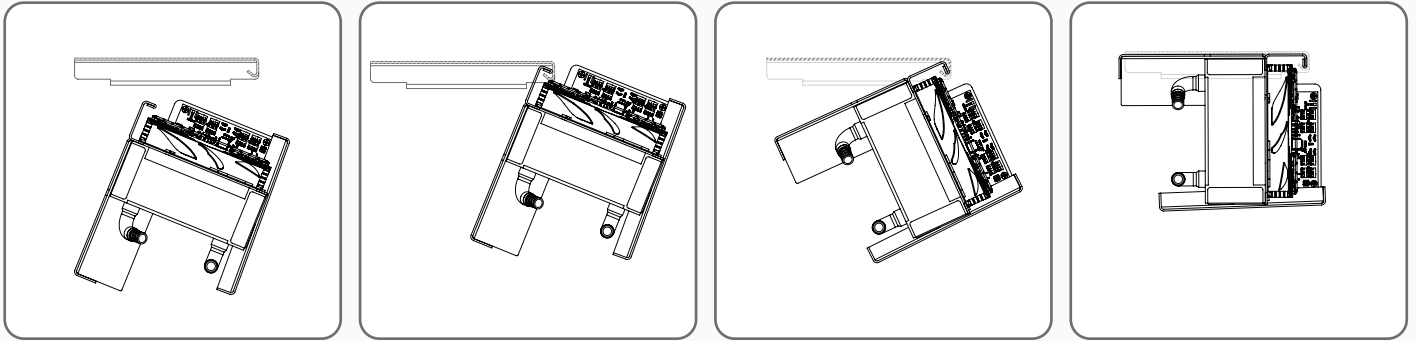
The bended edge of the mounting plate should be the side of the plate closest to the back wall of the wine cellar.



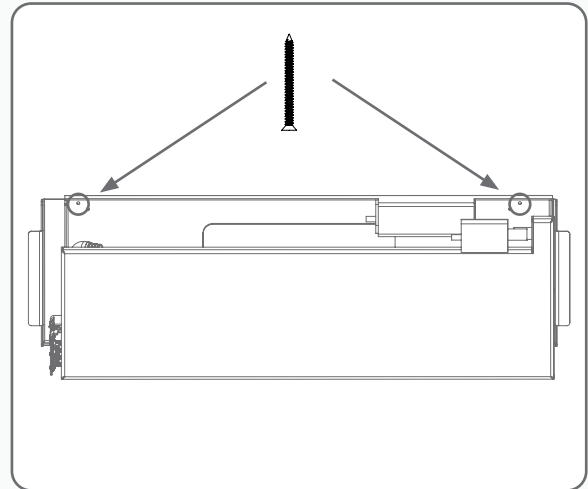
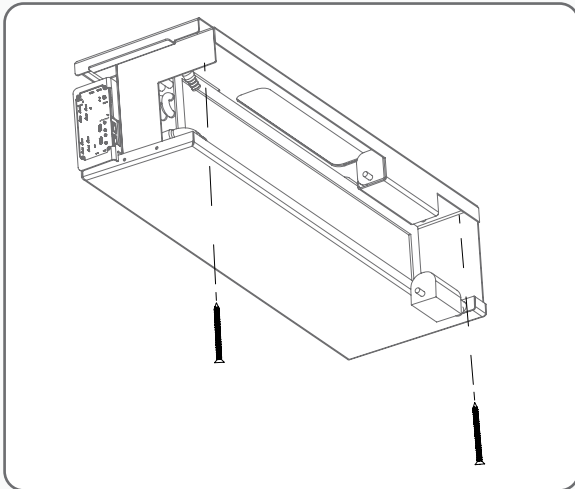
- 2 Check that the backing plate is level in both axes. If necessary, use shims between the ceiling and the plate to level everything. If the support is not level, the condensation generated by the system may drip to the floor rather than being picked up by the condensation pump.



- 3 Install the radiator module on the support plate. Be careful not to trap the tubes when rotating the module.

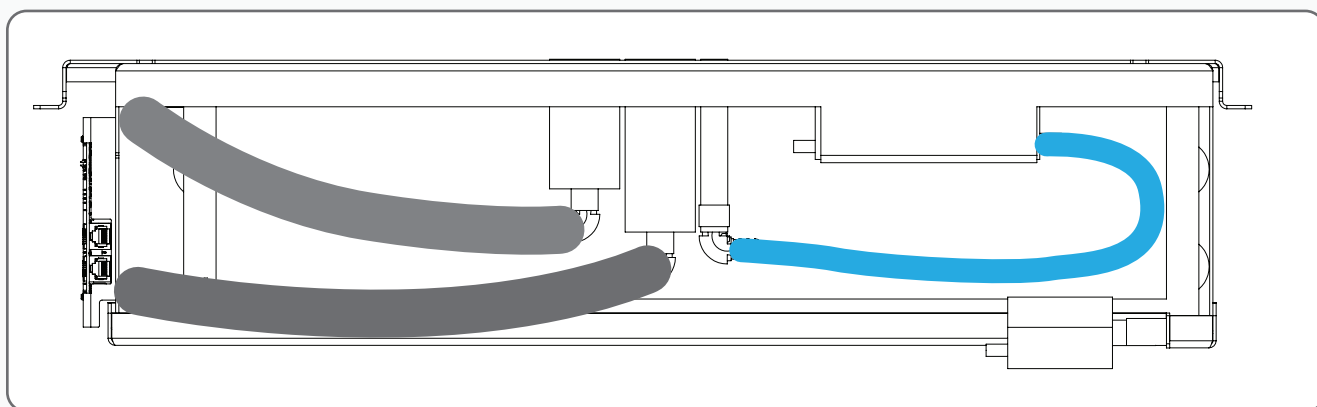


- 4 Secure the radiator in place with two # 8 flat head wood screws long enough to anchor into the nailing base.



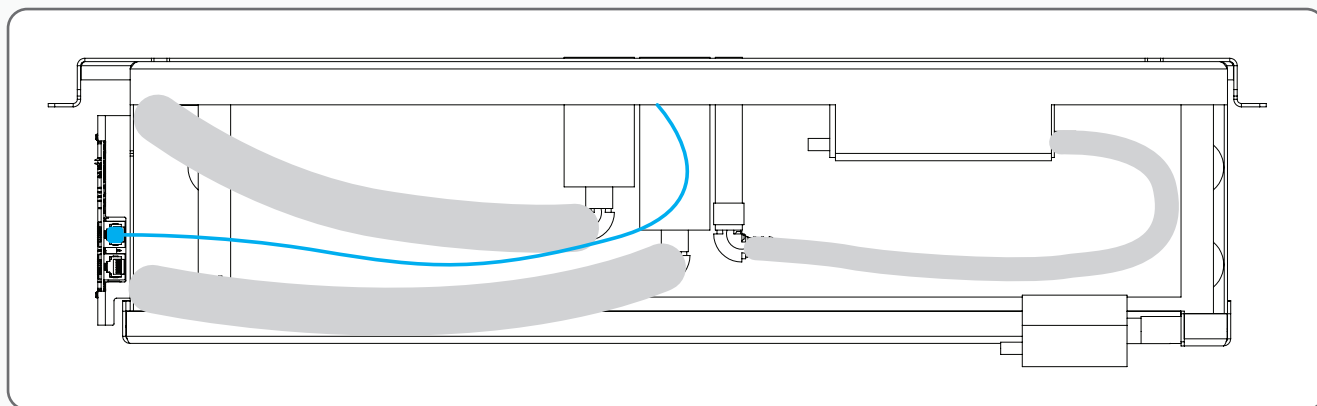
- 5 Connect the tubes previously installed in the walls with the radiator module. The tubes preinstalled on the radiator are connected directly to the PEX fittings without a crimp ring. The tube is therefore installed on the PEX tip as it will be on a barb fitting.

— Insulated Tube      — Non-insulated Tube



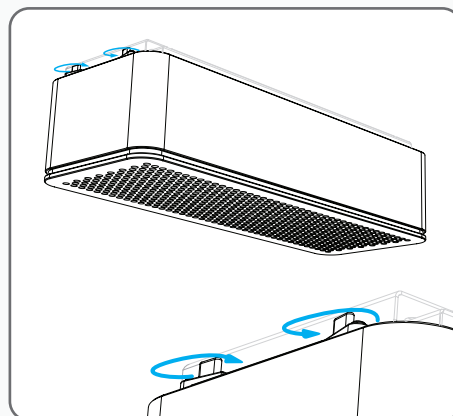
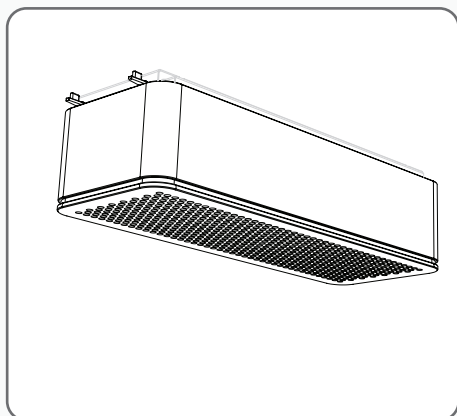
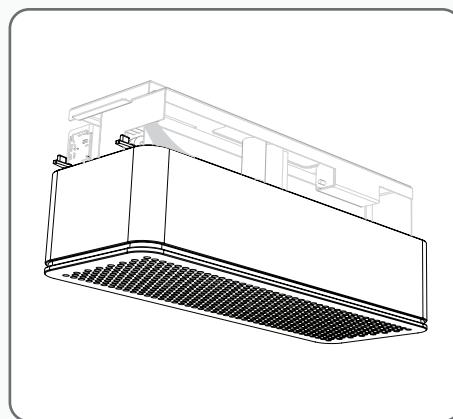
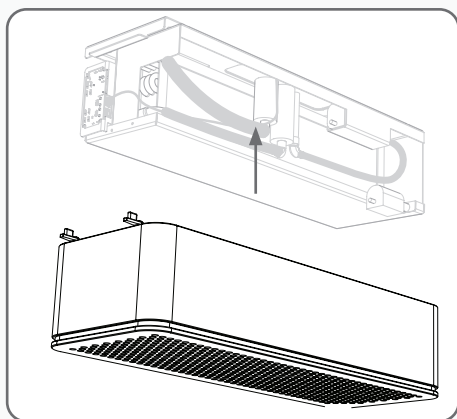
Make sure that the connection with the tubes is above the condensation pan. Otherwise, take care to insulate the PEX and fitting to avoid condensation.

- 6 Install a connector at the end of the RJ45 wire and connect the wire to the RC4LT electronic board. The wire can be plugged into any of the two connectors on the board.



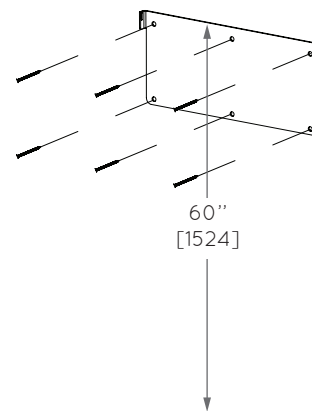
**CAUTION** Be sure to always test your cable with an RJ45 cable tester before plugging the wire into the device. Reversing two wires when installing the connector could damage the product electronics.

- 7 Install the wooden box over the radiator. Before sliding the casing into place, find the joint on the wood veneer and orient that surface toward the back of the wine cellar. When putting the housing back in place, make sure the tubes are not kinked. Once the wood box is in place, turn the support fins to hold it in position. Make sure the fins are securely in place and lightly pull on the wood casing to make sure the part is firmly in place.

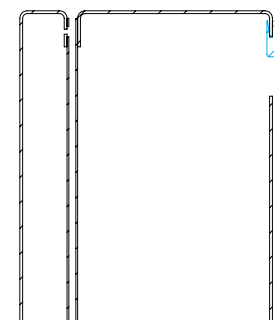
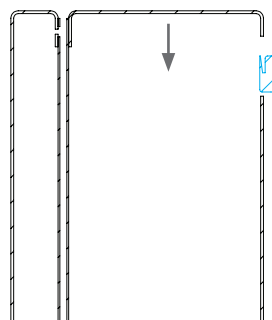
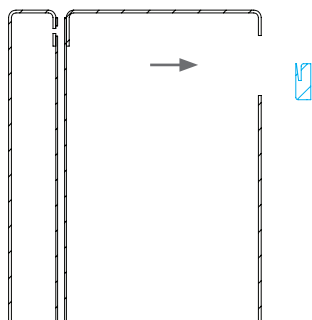
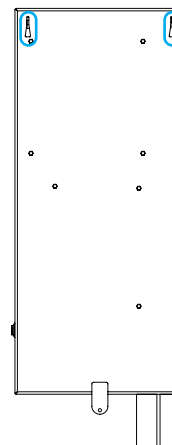


## CONTROL BOX FINAL INSTALLATION

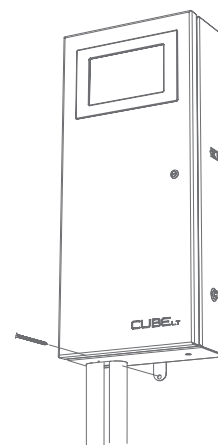
- 1 At the desired location of the control box, install the mounting plate 60" from the floor.



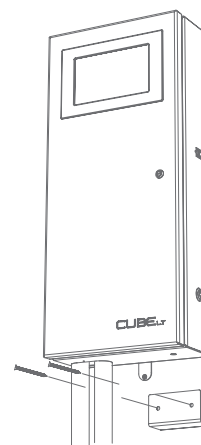
- 2 Using the two openings behind the control box, embed the unit on the two hooks of the support plate, previously installed on the wall.



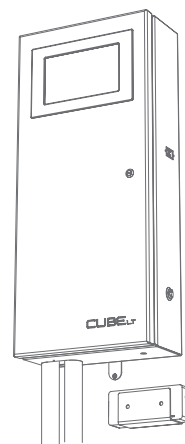
- 3** Secure the control box in place with a screw. The locking hole is located in the middle under the device.



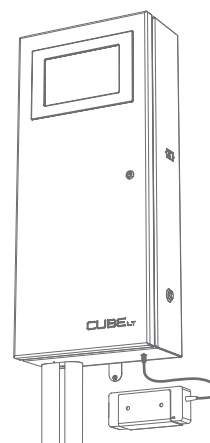
- 4** Install the power supply bracket under the unit on the right side of the unit. The bracket is installed with two wood screws directly to the wall.



- 5** Slide the control box power supply block into its bracket.

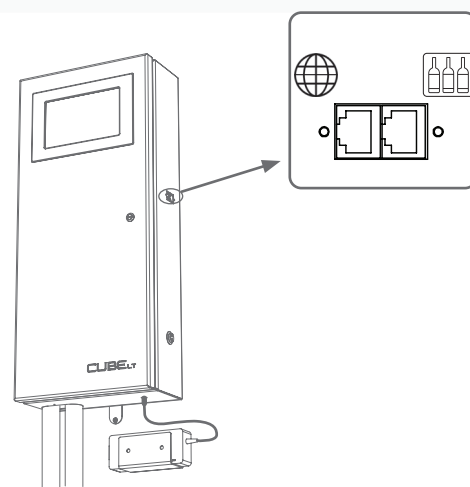


- 6 Connect the power supply to the control box, the connector is located on the bottom of the device. Do not start the device at this step.



- 7 Connect the communication cable (previously connected to the RC4LT) to the control box. The communication cable connects to the closest to the wall RJ45 outlet, identified by an icon showing three bottles of wine.

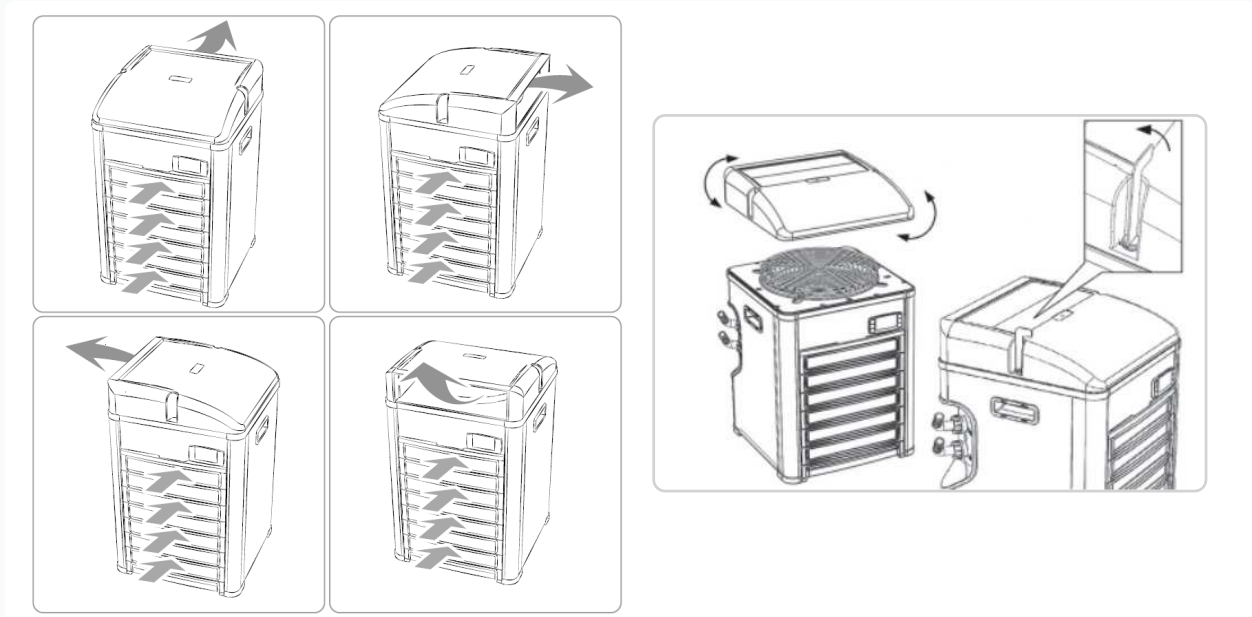
Connect the RJ45 cable connected to the internet to the control box. The internet connector is identified by a planet icon. This output is the closest output from the front of the device.



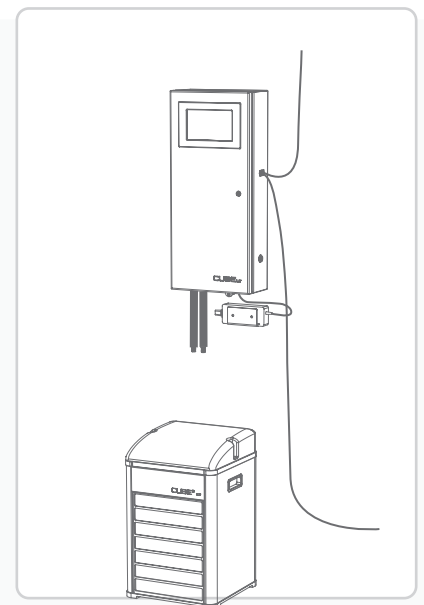
**CAUTION** Be sure to always test your wire with an RJ45 wire tester before plugging the wire into the device. Reversing two wires when installing the connector could damage the product electronics.

## WATER CHILLER FINAL INSTALLATION

- 1 Take the water chiller out of its packaging and install the cover on top of the unit. The hood allows you to choose the direction of hot air exit. Orient the hot air outlet so that the heat emitted easily dissipates into the room.



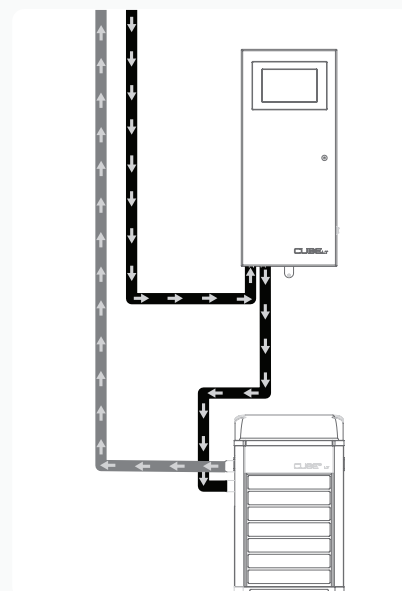
- 2 Place the water chiller on the floor under the control box.





**3** Make the hydraulic connection of the device according to the following diagram. Any of the two tubes coming from the RC4LT can be used for supply or return to the unit. They can be reversed without problem. The connections between the different units must be made with the pre-insulated tubes supplied with the device. The rubber tubes connect directly to the PEX ferrules without a crimp ring.

- The tube closest to the middle of the control box connects to the outlet closest to the floor of the water chiller.
- The tube closest to the side of the control box connects to one of the two pipes coming from the RC4LT (in the wine cellar).
- The highest outlet of the water chiller connects to one of the two pipes coming from the RC4LT (in the wine cellar).



To facilitate installation, a few inches before the appliance use a PEX union to pass from the rigid PEX pipe to the pre-insulated flexible tubing supplied with the appliance.



Make sure that the insulation covers the unions well to avoid any condensation. Use duct tape to cover the joints between the insulation sections.

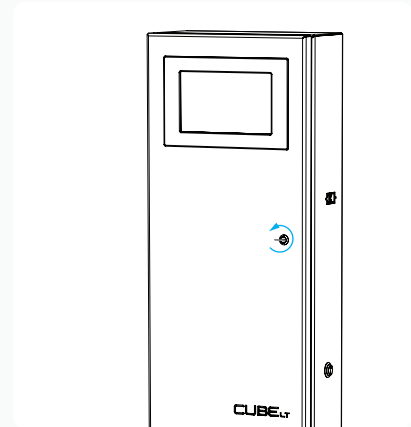


**CAUTION** Make sure you never power the water chiller unless there is water in the system first.

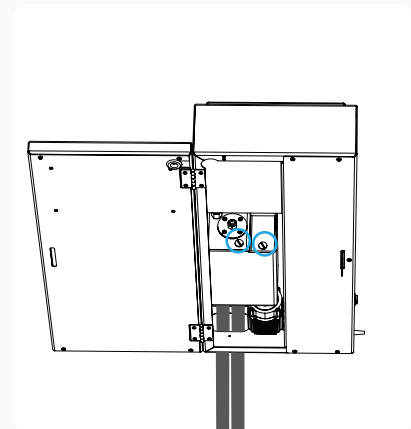
## System Start-Up

Now that all of the components are connected together, the system can be put into operation. In order to avoid damaging the appliance, it is important not to start the system if the wine cellar has not yet been completed (door missing, seal missing, etc.) or if work that can generate a lot of dust remains to be done (joint pulling, wood cutting ...).

- 1 Using a coin, unlock the front of the control box and open the door.



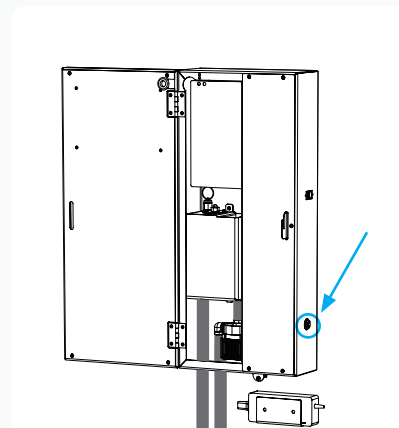
- 2 Using a coin, unscrew the two tank caps.



- 3** Turn the control box to “ON” by flipping the power button on the side of the device.



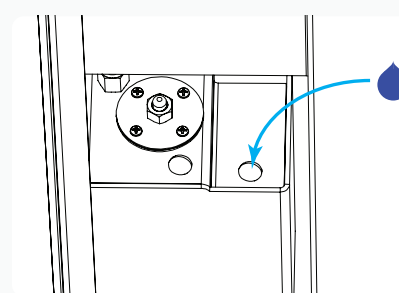
**CAUTION** Do not start the water chiller at this point. Water must be put into the system before it is started.



- 4** Fill the reservoir with distilled water until the reservoir is full. It is normal for the pump to start and stop a few times during filling. A water level sensor inside the tank ensures that the pump stops when there is water missing.



**CAUTION** To prevent the formation of algae or other contaminants in the system. Always use sterile water such as distilled water to fill the system.

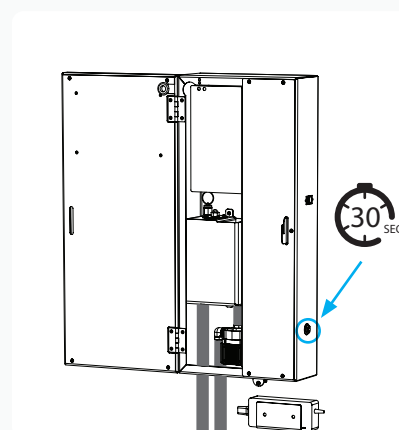


- 5** Turn the control box to “OFF” by flipping the power button on the side of the device.

Wait 30 seconds

Turn the control box back to “ON” by flipping the power button on the side of the device.

Add water in the tank as needed.

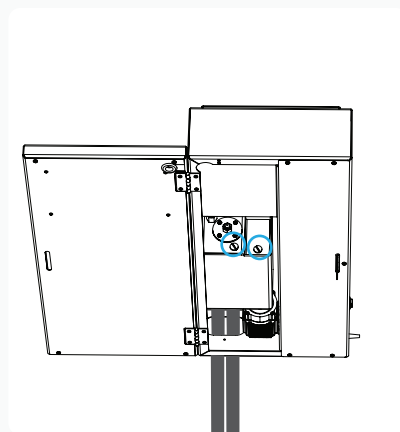


- 6 Repeat step 5 a minimum of three times to make sure the system is full of water.

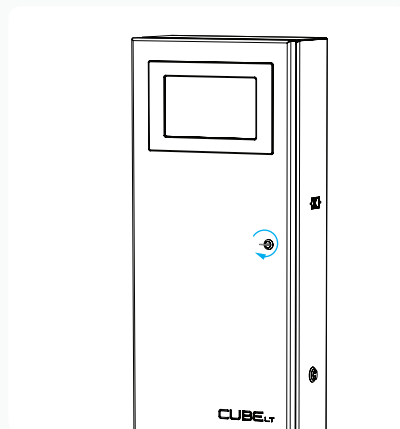
You should be able to put a minimum of 3.8 liters (1 gal) of water in the system.

3X

- 7 Replace the two tank caps.



- 8 Close the door and lock the front of the control box using a coin.



- 9 Plug in the water chiller and start the unit by pressing the power button for a minimum of 3 seconds.



The water chiller has a 2 minutes delay before starting to protect the compressor.



**CAUTION** The water chiller has been factory pre-set, do not change the temperature. The temperature of the wine cellar is adjusted with the control box, not the water chiller.

- 10 Now that the installation is complete, go around the components and make sure there are no leaks and that the insulation covers all the pipes.

If the condensate drain hose was not connected to a drain during the “Rough-in”, connect the tube to an open drain to avoid any risk of odor in the wine cellar.

## Use

The CUBE<sup>LT</sup> is controlled by the system touch screen located on the front of the control box. When the screen has not been used for a while, the power to the display is turned off to prolong the life of the product as much as possible. Just touch the screen to restart the display. After touching the screen, it is normal to have about 3 seconds delay before the display appears.



- A-Wine cellar temperature
- B-Current wine cellar temperature
- C-Wine cellar humidity
- D-Wine cellar temperature setpoint
- E-Alarm sound level
- F-Temperature of the room where the control box is located
- G-Internet connection
- H-Setup menu
- I- Screen lock
- J-Temperature Adjustment


## Temperature Adjustment

To change the temperature set point in the wine cellar. Click on the arrows to the right of the temperature display. The current temperature display will then change to show the setpoint.



## Adjusting the Alarm Sound Level

Click on the icon displaying the alarm sound level to change it.

-  High
- Silent



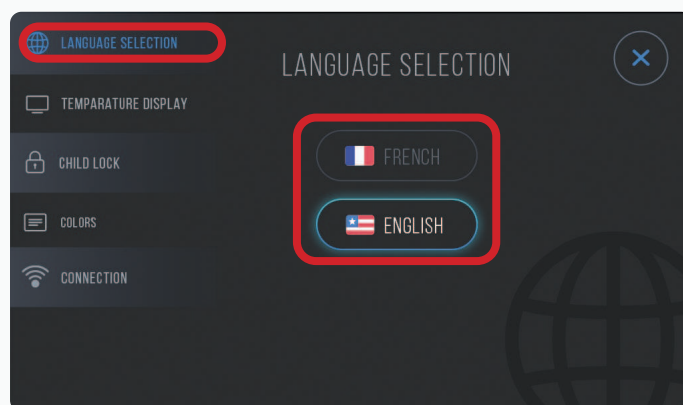
## Settings

The settings menu provides access to the various display settings of your device. To access this menu click on the Settings button in the upper right corner of your screen.



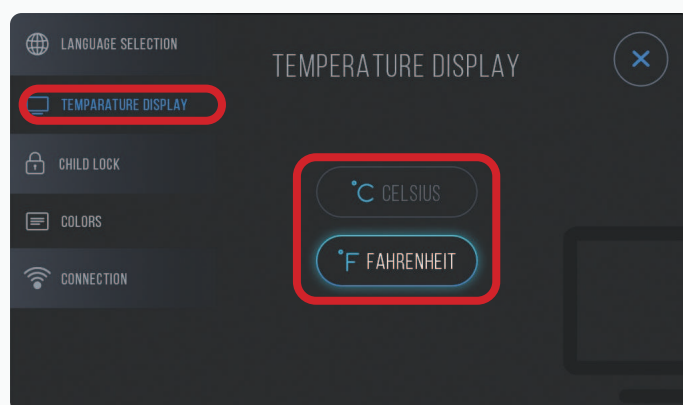
## Selecting the Display Language

In the Settings menu, select the language tab on the left of the screen. Then click on the desired display language. To return to the main screen. Click on the “X” in the upper right corner.



## Temperature Display

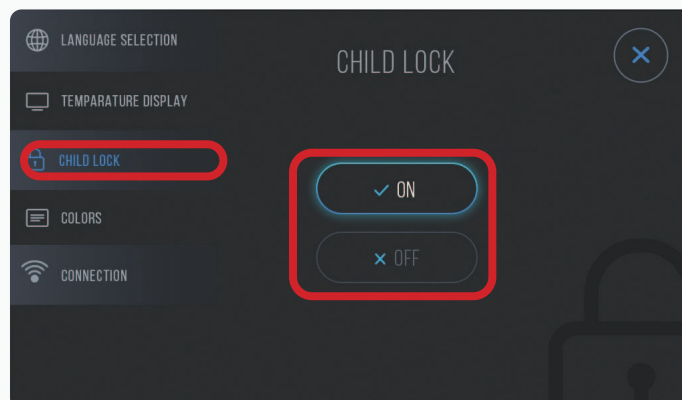
In the Settings menu, select the temperature display tab on the left of the screen. Then click on the desired display unit. To return to the main screen. Click on the “X” in the upper right corner.





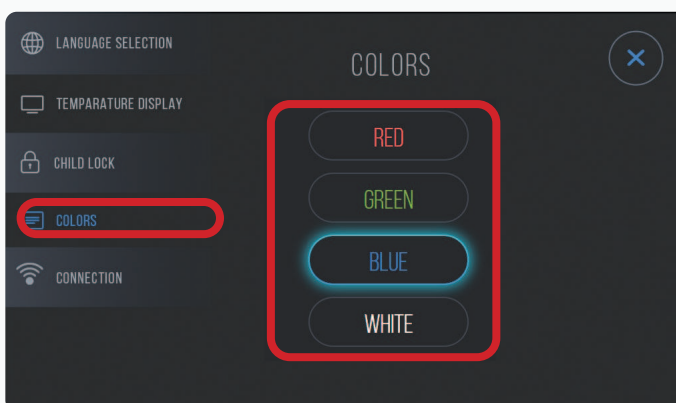
## Activation / Deactivation of the Lock Screen

In the Settings menu, select the screen lock in the tab on the left. Then click on On or Off to activate or deactivate the function. To return to the main screen. Click on the “X” in the upper right corner.



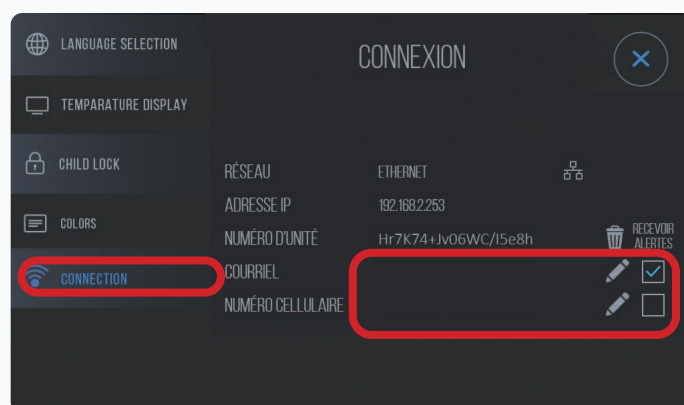
## Display Color Selection

In the Settings menu, select the Colors tab in the left of the screen. Then click on the desired display color. To return to the main screen. Click on the “X” in the upper right corner.



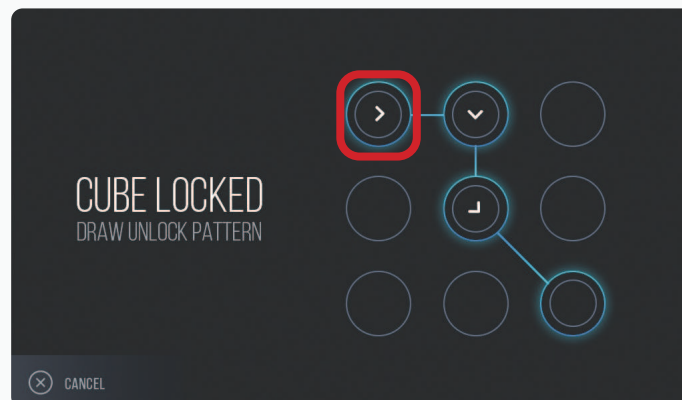
## Alerts Setting

In the Settings menu, select Connection tab in the left of the screen. You can then enter an email address and/or a telephone number to receive alerts in the event of failures of your system. Check the box corresponding to the type of alert you wish to receive.



## Screen Unlock

To unlock the home screen, click the circle at the top left of the keyboard. An arrow will appear in the center of the button, then click on the next circle, indicated by the arrow. Continue going through it this way until the screen unlocks.



## Control with a Device on the Same Network

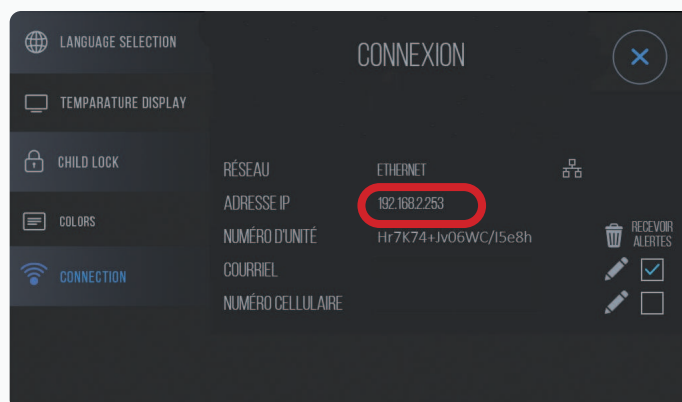
It is possible to control your CUBE<sup>LT</sup> using another device connected to the same network (computer / tablet / smartphone). To do this you must first retrieve the IP address of your device appearing in the Connection tab of the Settings menu.

Thereafter, you only have to go to the web browser of your device and enter the following address:

**`http://[ip_address]:4500/cube`**

Which would give for example for the screen presented here:

`http://192.168.2.253 :4500/cube`



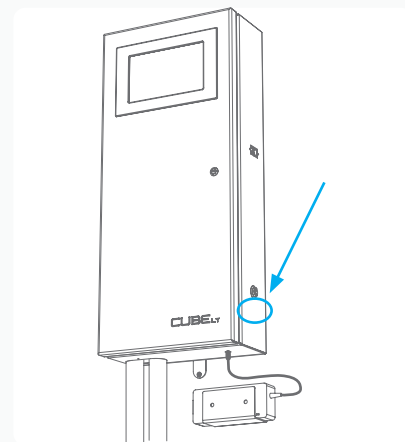
The CUBE<sup>LT</sup> control screen will then appear in your browser and you can control it in the same way as if you will do on the system screen.

## Remote Connection

Thanks to its internet connection, the CUBE<sup>LT</sup> can be controlled remotely. It also records its temperature and humidity history which can be viewed through the system's web interface.

- 1 Get the serial number of your device under the power button.

Serial Number: CLT-400-XXXXX



- 2 To create your account, send the following information to **info@thewinesquare.com**:

- Name
- Serial number of the device
- Email address to associate with the account
- Phone number to reach you

In the following hours, your account will be created and a confirmation email containing your password will be sent to you.

- 3 Using your computer or mobile device, go to:

[api.thewinesquare.com](http://api.thewinesquare.com)

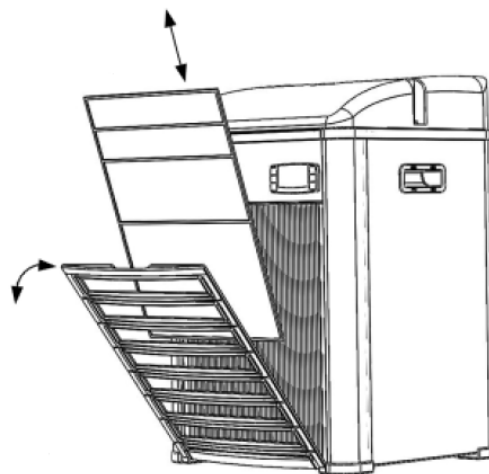
Use the email provided earlier as the username and the password provided in the confirmation email to log in.

## Maintenance

### Cleaning the Water Chiller Filter

The filter should be cleaned at least once a month or depending on the amount of dust present where the appliance is located.

1. Open the plastic grid of the upper part
2. Take out the filter
3. Clean the filter in warm water
4. Replace the filter



**NOTE :** The grille is attached to the device with magnets. You don't need any tools to remove it, just gently pull on it.

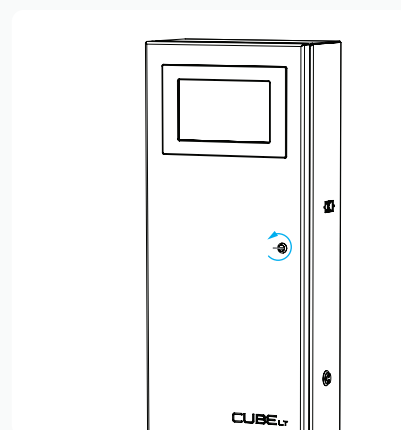
## Add Water

It is normal over time to add water to the reservoir. The water evaporates through the tubes much like wine does through the cork. However, the system should not lose more than a few milliliters per year.

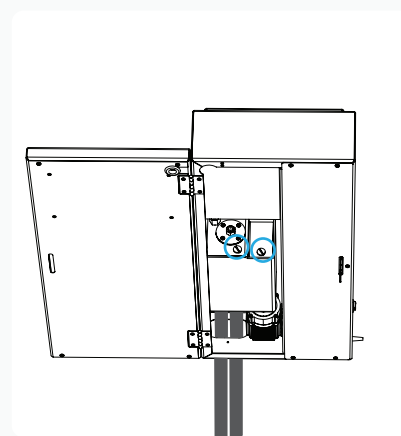
However, during the first filling, it is normal to have to add water after a few days. During filling, micro-bubbles form on the internal walls of the radiator. These micro-bubbles will take a few days to migrate to the reservoir.

If your CUBE<sup>LT</sup> requires frequent addition of water, then check for the presence of a leak in your installation.

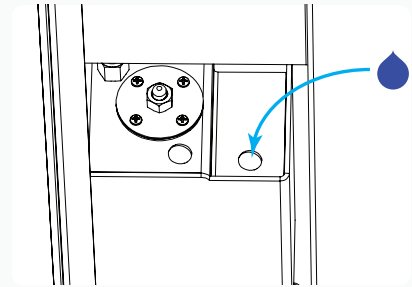
- 1 Using a coin, unlock the front of the control box and open the door.



- 2 Using a coin, unscrew the two tank caps.

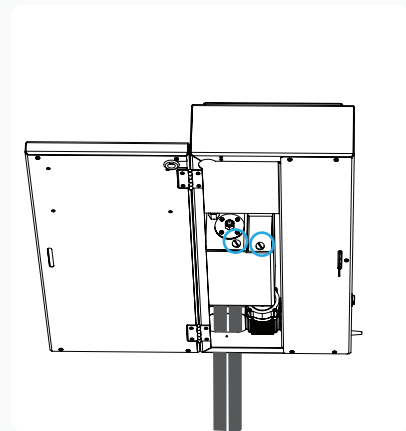


- 3 Fill the tank with distilled water until the tank is full. It is normal for the pump to start and stop a few times during filling. A water level sensor inside the tank ensures that the pump stops in the event of a lack of water.

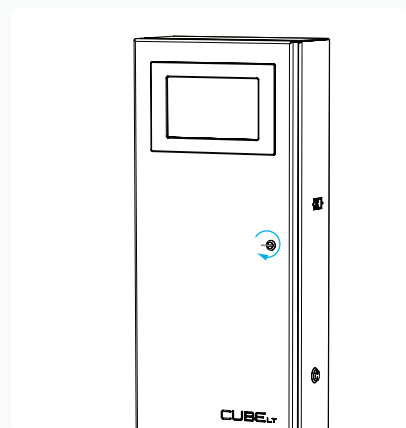


**WARNING** To prevent the formation of algae or other contaminants in the system. Always use sterile water such as distilled water to fill the system.

- 4 Replace the two tank caps.



- 5 Close the door and lock the front of the control box using a coin.

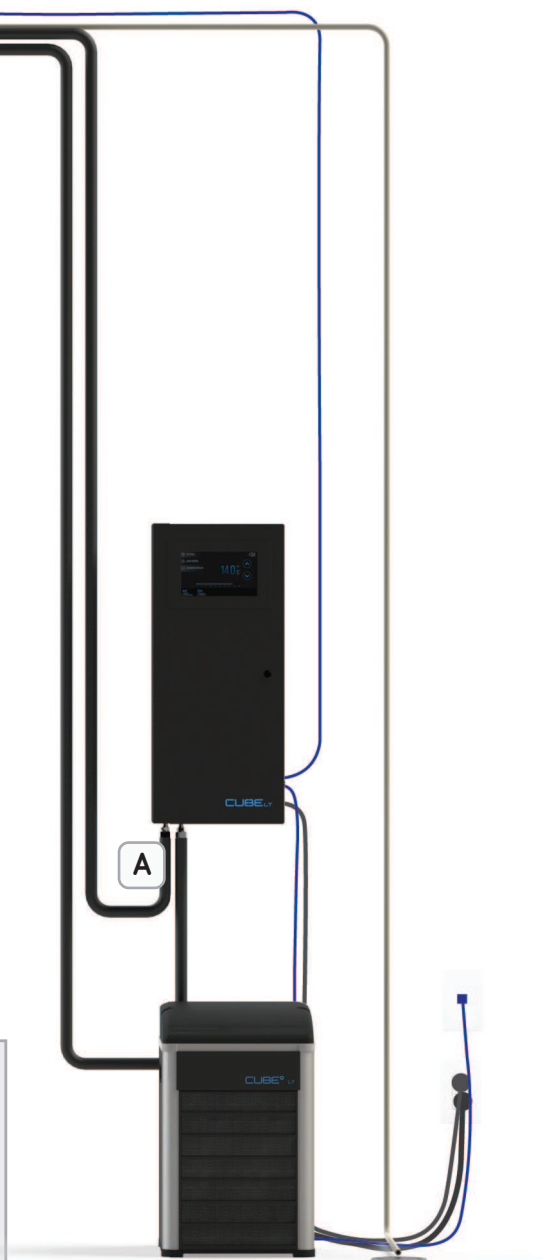


## Water Replacement

Every 5 years, the water in the system must be replaced. To do this, the system must be completely drained and refilled.

1. Unplug the Water Chiller and the CUBE<sup>LT</sup>
2. Position a container under the control box
3. Open the front of the control box using a coin
4. Disconnect the water supply tube from the control box (A), the left tube
5. Put the section of the tube coming from the wine cellar in the bucket
6. Using a compressor limited to 15psig, inject air into the tubing connected to the control box.
7. Inject air until water stops coming out
8. Clean the water filter in position (A)
9. Replace the water filter
10. Reconnect the tube coming from the cellar to the control box
11. Refill the system as outlined in the system start-up procedure.

**NOTE :** To open the water filter, take the filter by the two metal sections and unscrew to release the central part.



## Troubleshooting

If there is a problem with your device, please refer to the section below. If you cannot find a solution to your problem, please contact your reseller or go to [www.thewinesquare.com](http://www.thewinesquare.com) to find contact information.

### Failure identified by a system error code

In most cases, if your system is experiencing difficulties, an alarm will appear on the monitor screen. There are also different levels of error severity. The symbol that accompanies each of these warnings informs you of the urgency of correcting the situation.



The blue circle corresponds to the first level of warning. At this stage the system is only informing you of a situation for which it is taking action. In this situation the system does not experience any mechanical problem.















The yellow triangle is the second level of warning. It informs you that the system continues to operate but not in its normal state. The situation requires a short or medium term intervention to correct the problem.



The red circle is the last level of warning. At this point the system has a major problem and is no longer able to function. The problem must be corrected for the system to restart.



The table below presents the complete list of errors that can be displayed on your system.

Error No.	Level	Description
Error 001		Communication interrupted with the RC4LT
Error 005		Cold water loop, too cold
Error 006		Defective cold water loop pump
Error 009		Cellar temperature sensor is faulty
Error 011		Low level in the cold water tank
Error 012		Manque d'eau dans le réservoir d'eau froide
Error 016		Disconnected cold water temperature sensor
Error 019		Cube fan, faulty
Error 020		System reached critical temperature and shut down
Error 021		Wine cellar overheating
Error 022		Wine cellar too cold
P1		Damaged water cooler temperature sensor

## ERROR 001

Loss of communication with your wine cellar causes the system to shut down. The Cube is no longer able to know the temperature and humidity inside the room. Communication is done using the RJ45 communication cable. In most cases, this problem is simply due to a disconnection of the cable.

### SOLUTIONS

1. Check that the communication cable is properly connected to the control box and to the RC4LT electronic card
2. Using an RJ45 cable tester, check that the communication cable works well between the RC4LT and the control box.

---

## ERROR 005

The temperature of the cold water loop has dropped below the critical value of 3°C. At this temperature the Cube cannot function properly. System power will be reduced until the situation recovers.

### SOLUTION

1. Check if the water chiller is faulty. If the water chiller has a control problem or its setpoint has been changed, it may not shut down.

## ERROR 006

The cold water pump is faulty. The system no longer receives feedback from the pump. The system will stop cooling until the situation is restored.

### SOLUTION

1. Replace the cold water pump. To do this, contact your The Wine Square product retailer.

---

## ERROR 009

The temperature sensor inside the RC4LT (in the wine cellar) is faulty. It communicates with the system but it sends erroneous data. The system is therefore no longer able to know the temperature of the cellar and to control it. The system will stop cooling until the situation is restored.

### SOLUTIONS

1. Restart the system by turning off the power of the control box.
2. Using an RJ45 cable tester, check that the communication cable works well between the RC4LT and the control box.
3. Replace RC4LT control board. To do this, contact your The Wine Square product retailer.

## ERROR 011

The water level in the cold water loop has dropped. The system is working normally but it is necessary to add water in the next few weeks to prevent the system from shutting down. The system is operating normally.

### SOLUTION

1. Add water to the system. Refer to the Adding Water procedure in the Maintenance section of this manual.
- 

## ERROR 012

The water level in the cold water tank is insufficient to allow the system to operate. The system shuts down until the situation is corrected. This error only occurs if you have left error code 011 for a very long time (several months) without correcting it. Otherwise you are probably in the presence of a leak.

### SOLUTIONS

1. Find and repair the leak in the system.
2. Add water to the system. Refer to the Adding Water procedure in the Maintenance section of this manual.

**ERROR 016**

The cold water loop temperature sensor is no longer able to transmit its signal to the control computer. In this situation, the CUBE<sup>LT</sup> is no longer able to operate properly and air-condition your wine cellar. The system will shut down until the situation is corrected.

**SOLUTION**

1. Replace the water loop temperature sensor in the control box. To do this, contact your The Wine Square product retailer.
- 

**ERROR 019**

The fan inside the control box has stopped working. The system continues to operate but is at risk of overheating. The situation must be corrected quickly.

**SOLUTION**

1. Replace the fan in the control box. To do this, contact your The Wine Square product retailer.

**ERROR 020**

The temperature inside the control box has reached the critical point of 50°C. In this situation the system shuts down to prevent any damage.

**SOLUTION**

1. Contact your The Wine Square product dealer to identify the source of the problem.
- 

**ERROR 021**

The temperature inside the wine cellar has reached the critical point of 24°C. In this situation the system stops to prevent any damage to the cellar that may come from a failure of the system.

**SOLUTION**

1. Contact your The Wine Square product dealer to identify the source of the problem.

## ERROR 022

The temperature inside the wine cellar has reached the critical point of 1°C. In this situation the system stops to prevent any damage to the cellar that may come from a failure of the system.

### SOLUTION

1. Contact your The Wine Square product dealer to identify the source of the problem.
- 

## ERROR P1

The water chiller temperature sensor is damaged. In this situation the water cooling system stops. The system is no longer able to air-condition the wine cellar.

### SOLUTION

1. Contact your The Wine Square product dealer to identify the source of the problem.

## Failure Without System Error Code

The high temperature in the wine cellar, no cold air comes out of the RC4LT unit.

1. Check the system screen to see if an error code appears.
2. Check if the water chiller is turned on and functional. By default the chiller should work to maintain the water temperature at 8°C [46°F].
3. Check if the water is circulating well in the system. By touching the connections at different places on the loop, the components should be at roughly the same temperature. If not, look for a pinched hose that would prevent water flow.
4. Stop and restart the control box a few times to try to get rid of any air bubbles that may have formed in the water cooler pump or tank.
5. Contact your The Wine Square product retailer.

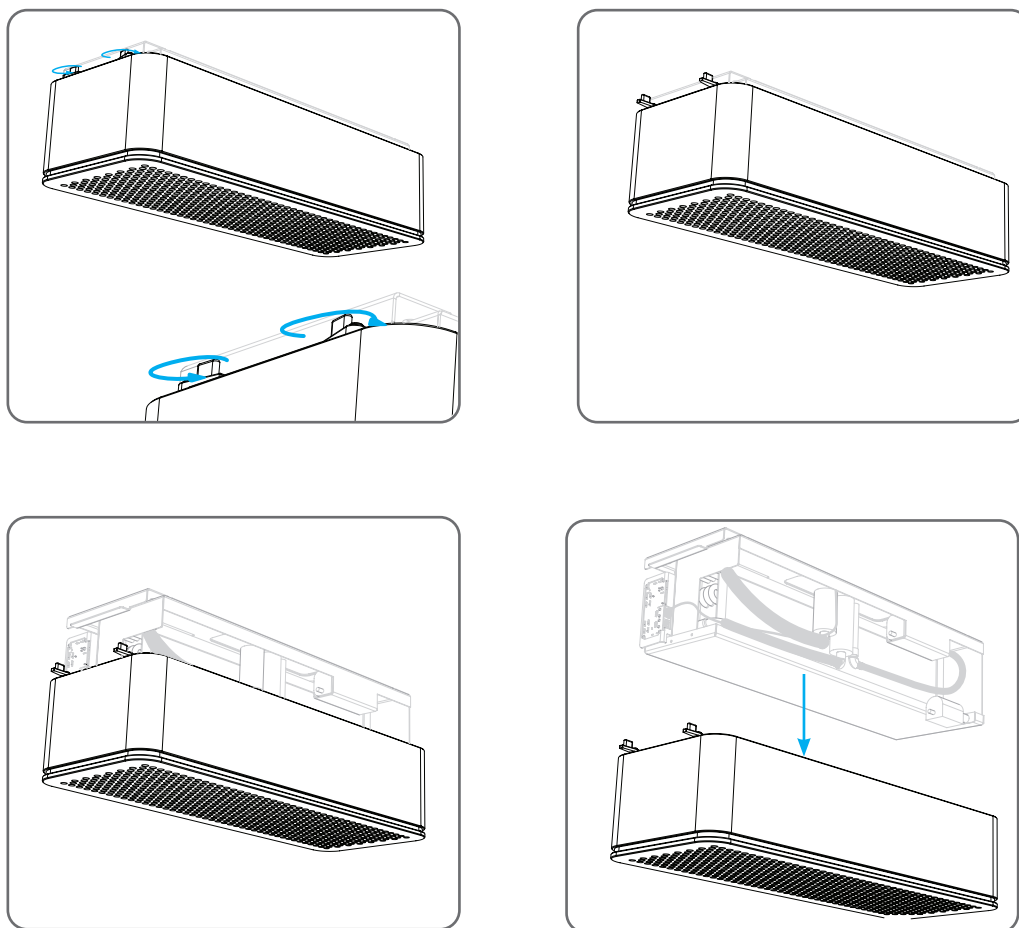
## Humidity too high (> 80%) in the wine cellar.

1. Check that the construction of the wine cellar meets the minimum system requirements.
2. Check if the humidity in the house is normal. Very often too high humidity in the wine cellar is a sign of poor humidity management in the house. Studies show that to maintain good air quality in a home, humidity should be between 30% and 50% at 21°C.
3. Lower the water chiller setpoint to cause more condensation in the wine cellar and thus drier the air.
  - To change the water temperature, on the chiller control:
    - a) Press the SET key for 3 seconds to view the selected value and the unit of measurement icon (C or F) starts flashing.
    - b) Modify the value using the keys marked with an arrow.
    - c) Press the SET key to confirm the value.
4. Contact your The Wine Square product dealer.



## Water drips from the RC4LT

1. In the majority of cases, this is due to a poorly insulated hose. Remove the case from the RC4LT.



2. Look for the source of the water drops. Here are the most common problems:
  - Poorly insulated hose
  - Leak
  - Clogged condensate pump

## A temperature difference between my thermometer in the wine cellar and the system display.

Temperature control of the CUBE<sup>LT</sup> use a temperature sensor located in the RCULT housing. As the temperature is taken from the ceiling and close to the radiator, it is normal to see a difference between this measurement and a measurement taken elsewhere in the wine cellar.

Depending on the level of insulation of the wine cellar as well as its geometry, this difference could play between a few hundredths of a degree up to a few degrees.

If this difference is significant, it may be necessary to “cheat” the temperature demand to obtain the desired value. That is to say, if it is noted for example that the temperature in the cellar is 16°C whereas 14°C is requested, it will then be necessary to give the system a setpoint of 12°C in order to obtain in the wine cellar the desired 14°C.

It is important to let the system run for at least three days before starting this type of adjustment. The room and the bottles must cool completely before you see the actual behavior of the wine cellar.

## Insufficient cooling of the wine cellar.

1. Check that the construction of the wine cellar meets the minimum system requirements.
2. Check if the water chiller is turned on and functional. By default the chiller should work to maintain the water temperature at 8°C [46°F].
3. Check if the water is circulating well in the system. By touching the connections at different places on the loop, the components should be at roughly the same temperature. If not, look for a pinched hose that would prevent water flow.
4. Stop and restart the control box a few times to try to get rid of any air bubbles that may have formed in the pump or water chiller tank.
5. Check that the water chiller ventilation filter is clean. If necessary, clean the filter by following the filter cleaning procedure in the Maintenance section.
6. Check that the ambient temperature around the chiller is well below 38°C [100°F]. If necessary, ventilate to reduce the temperature.
7. Contact your The Wine Square product dealer.

# APPENDICES

## Wall Pre-Closure Checklist

### CUBE<sup>LT</sup>

By checking, I confirm the presence of the elements for the installation of the CUBE<sup>LT</sup>

- Wood blocking to the ceiling at the location of the RC4LT in the wine cellar
- An uninsulated PEX line between the RC4LT location and an open drain
- Two 1/2" PEX line covered with insulation between the location of the RC4LT and the location of the control box
- An RJ45 network wire with minimum 23AWG wire between the RC4LT location and the control box location
- Wood blocking at the location of the control box
- One NEMA 5-15R, 2 pole receptacle at the location of the control box and water chiller
- A network socket connected to the internet at the location of the control box

### Wine Cellar

By checking, I confirm the presence of the elements in the wine cellar

- Minimum floor insulation R7.5 or U0.13
- Minimum ceiling insulation R7.5 ou U0.13
- Minimum walls insulation R15 ou U0.06

CONTINUED NEXT PAGE

## Wine Cellar (suite)

By checking, I confirm the presence of the elements in the wine cellar

- Moisture barrier (vapour barrier) on all surfaces
- Wood blocking for glass installation
- Wood blocking for racking installation
- Low voltage wires for the installation of lighting
- Pictures of the walls and ceiling before they are closed
- \_\_\_\_\_
- \_\_\_\_\_

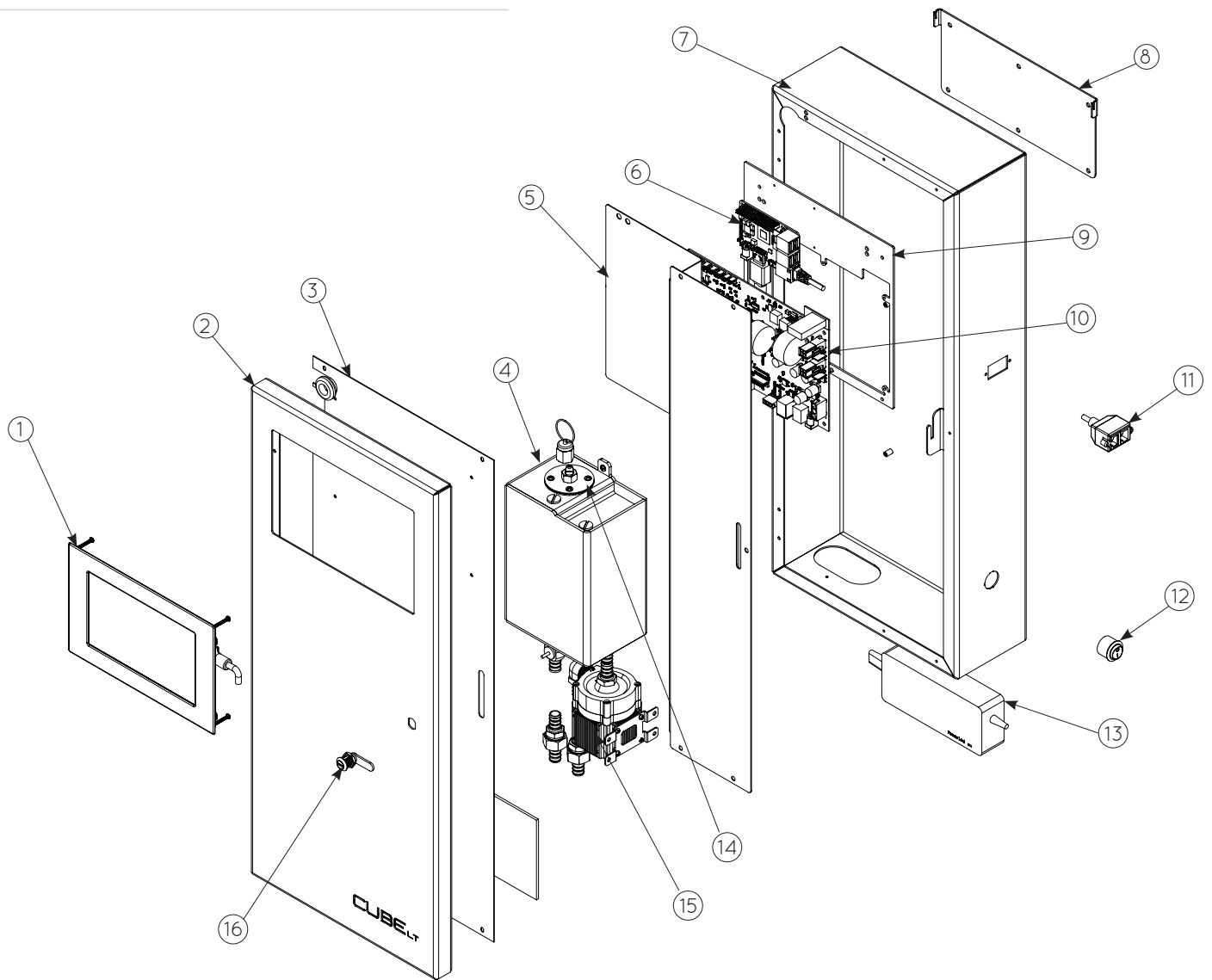
Inspection done by: \_\_\_\_\_

Dated: \_\_\_\_\_

Signature: \_\_\_\_\_

# PARTS LIST

Control Box CUBE<sup>LT</sup>

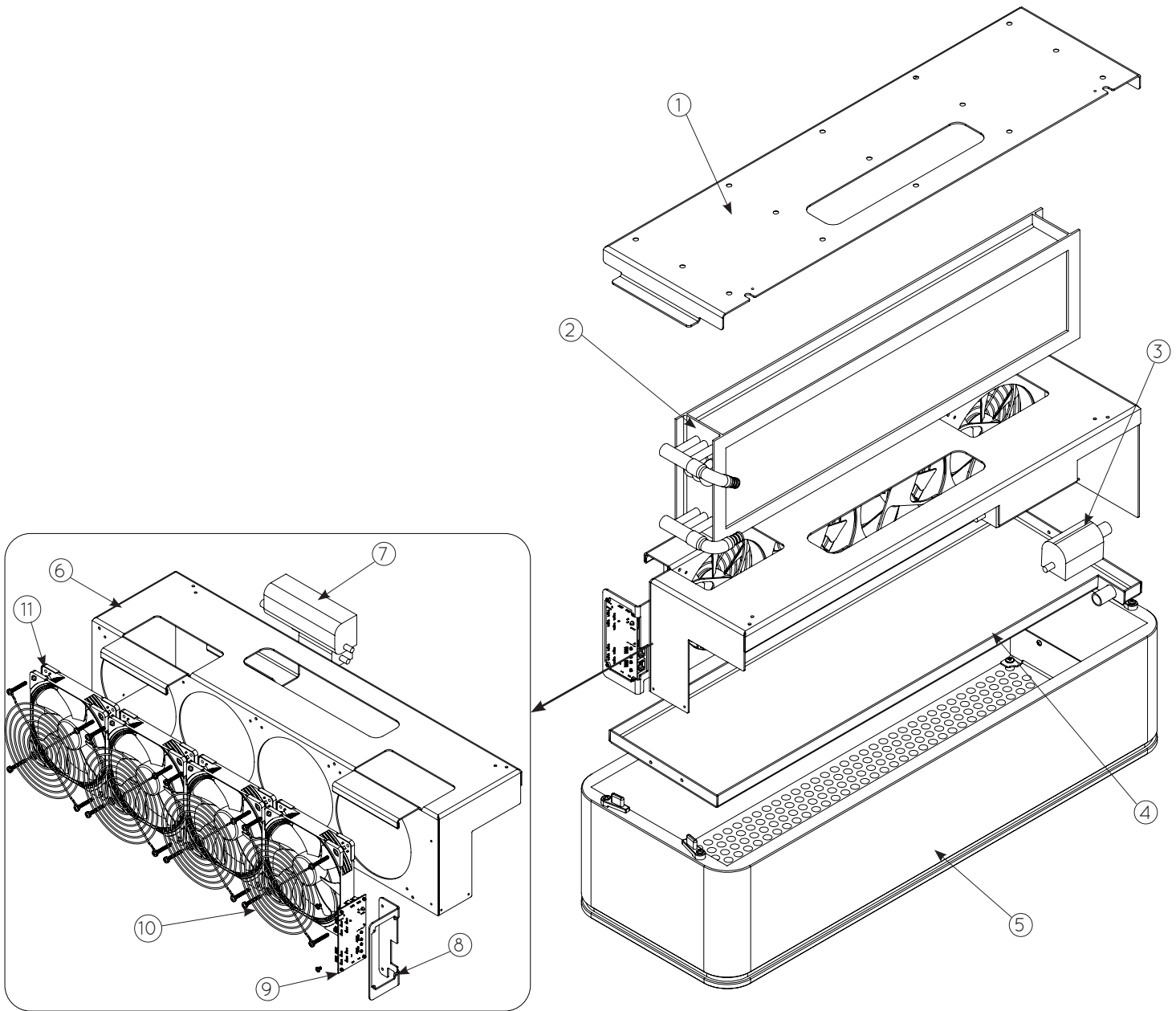


1	CUBLT-M-0001	Screen Assembly/ Assemblage écran
2	CUBLT-M-0002	Door Front / Devant porte
3	CUBLT-M-0003	Door Back / Dos porte
4	CUBLT-M-0004	Water Tank / Réservoir d'eau
5	CUBLT-M-0005	Inside Cover / Protecteur intérieur
6	CUBLT-M-0006	Computer / Ordinateur
7	CUBLT-M-0007	Steel Box / Boite de métal
8	CUBLT-M-0008	Holding Plate / Plaque support

9	CUBLT-M-0009	Electronic Plate / Plaque électronique
10	CUBLT-M-0010	Main Board / Carte principale
11	CUBLT-M-0011	RJ45 Inlet / Entrée RJ45
12	CUBLT-M-0012	Power Switch / Interrupteur
13	CUBLT-M-0013	Power Supply / Bloc d'alimentation
14	CUBLT-M-0014	Water Level Sensor / Capteur de niveau d'eau
15	CUBLT-M-0015	Pump / Pompe
16	CUBLT-M-0016	Door latch / Loquet de porte



RC4LT



1	CUBLT-M-0017	Ceiling Plate / Plaque plafond
2	CUBLT-M-0018	Radiator / Radiateur
3	CUBLT-M-0019	RC4 Water Level Switch / Capteur de niveau d'eau RC4
4	CUBLT-M-0020	Condensation Tray / Bac de condensation
5	CUBLT-M-0021	RC4LT Box / Boitier RC4LT
6	CUBLT-M-0022	Radiator Monting Plate / Plaque du radiateur
7	CUBLT-M-0023	Condensation Pump / Pompe à condensats
8	CUBLT-M-0024	PCB Holding Plate/ Support de PCB

9	CUBLT-M-0025	RC4LT PCB / PCB RC4LT
10	CUBLT-M-0026	Fan Grill / Grille de ventilateur
11	CUBLT-M-0027	Fan / Ventilateur



## TECHNICAL SUPPORT

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### QUESTIONS OR CONCERNS

The Wine Square's number one concern is customer satisfaction. If you need help or have any problems with your CUBE<sup>LT</sup> air conditioning system, please contact the members of the technical support team for assistance.

**Canada / USA : 1.844.888.5522**

[info@thewinesquare.com](mailto:info@thewinesquare.com)

The Wine Square  
10, rue Poissant  
Delson (Quebec) J5B 2J1  
Canada

Attn: Customer Service

