

Microclimate Control System
for Museum Display and Storage

MINI ONE

OPERATOR'S MANUAL ver. 10

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INTRODUCTION

The Preservatech's Mini One is a miniature humidity control device for museum showcases and similar, small sealed enclosures. This extremely efficient unit can reliably control humidity for individual or multiple enclosures.

When properly installed, this Microclimate Control system will typically maintain the relative humidity level in a sealed enclosure to within one percent (or less) of an operator determined value. Depending upon the ambient temperature conditions and enclosure construction, relative humidity levels of less than thirty five to over eighty percent can be attained.

The Mini One can be installed in a number of possible configurations for differing applications; performance characteristics will vary with installation and enclosures. In its most common application, the unit will provide a constant flow of air at a stable relative humidity level to maintain desired humidity levels in museum display and storage enclosures.

This manual will assist you in installing and setting up the unit, and attaching all necessary connections. As well, it contains complete instructions on operating the unit. Please note the cautions and warnings, as the unit may not provide optimum performance if all directions are not carefully followed. Some installation errors, such as the lack of adequate cooling for the unit may result in unit failure and will void the warranty.

PACKING LIST

Mini One Generator



Air Pump



Exhaust Termination



Exhaust Hose



Sensor



Pump to Mini One Hose



Mini One to Case Hose



Funnel



Power Cable

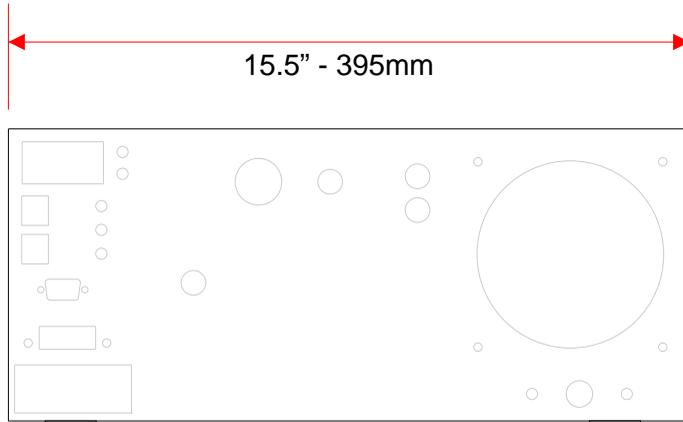


FRONT VIEW

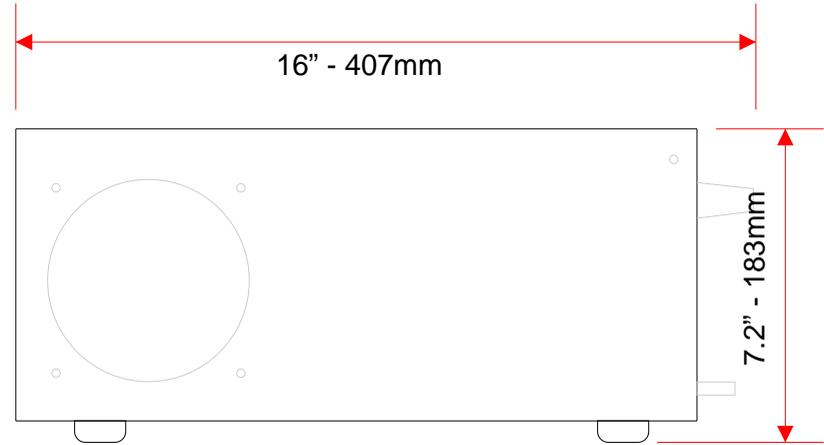


Unit may not look exactly as shown

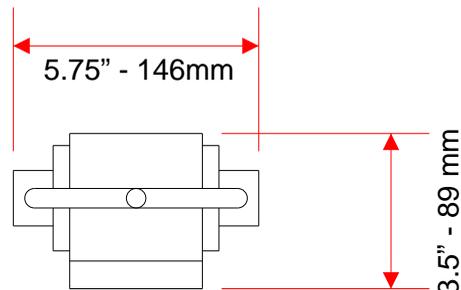
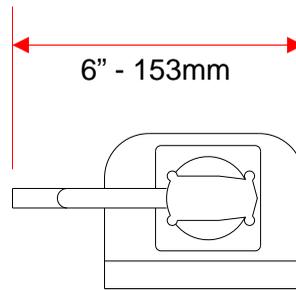
DIMENSIONS



Main Unit - Front



Main Unit - Side



Pump

DETAILED INSTALLATION RECOMMENDATIONS

An improper installation can severely compromise the operation of the unit. A level operating surface, adequate ventilation, and good access are imperative.

Power Supply:

Supply a reliable 110/220 Volt, 50/60 Hz AC power supply with ground, capable of supplying approximately 250 Watts. In countries with 110 V power grid, separate receptacle for the air pump is needed. We recommend a dedicated power supply with surge protection for all units.

Floor plate and Unit Placement:

Provide a flat level surface so that the front of the unit is easily accessed and maintained. The access panel or door should allow easy removal of the machine in case of emergency. If possible, allow at least 6 inches / 15 cm space around the units. No space need be provided above the units, but be sure to allow adequate space for installation and emergency removal. Some accommodation may be needed for filling the reservoir. The pump unit and the main unit may be placed side by side, or separated up to ten feet / three meters from each other. Should you wish to stack the units, be sure to place the pump unit ABOVE the main unit. Should you need to separate the pump from the main unit by more than the amount allowed by the supplied power supply cord and hose, be sure to use at least a 16 gauge wire to carry power, and do not separate the units by more than ten feet without consulting the manufacturer

Access:

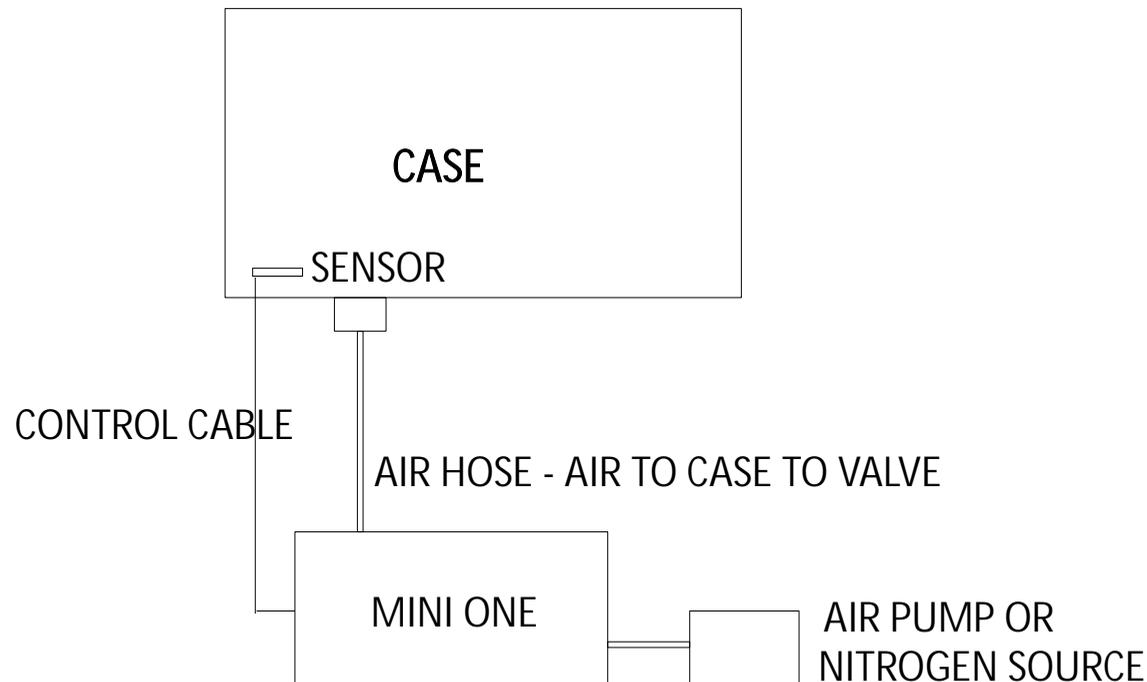
Provide a door or panel that allows easy access, installation, and removal of the unit. The front plate of the unit should be completely visible when the access is open.

SINGLE ENCLOSURE OPERATION

Run a length of hose (eg rigid 1/2 inch polyethylene tubing, or a combination of polyethylene and silicone or other flexible hose) from the “Air To Case” port on the unit to the case. Avoid tight bends, and be careful not to kink the hose.

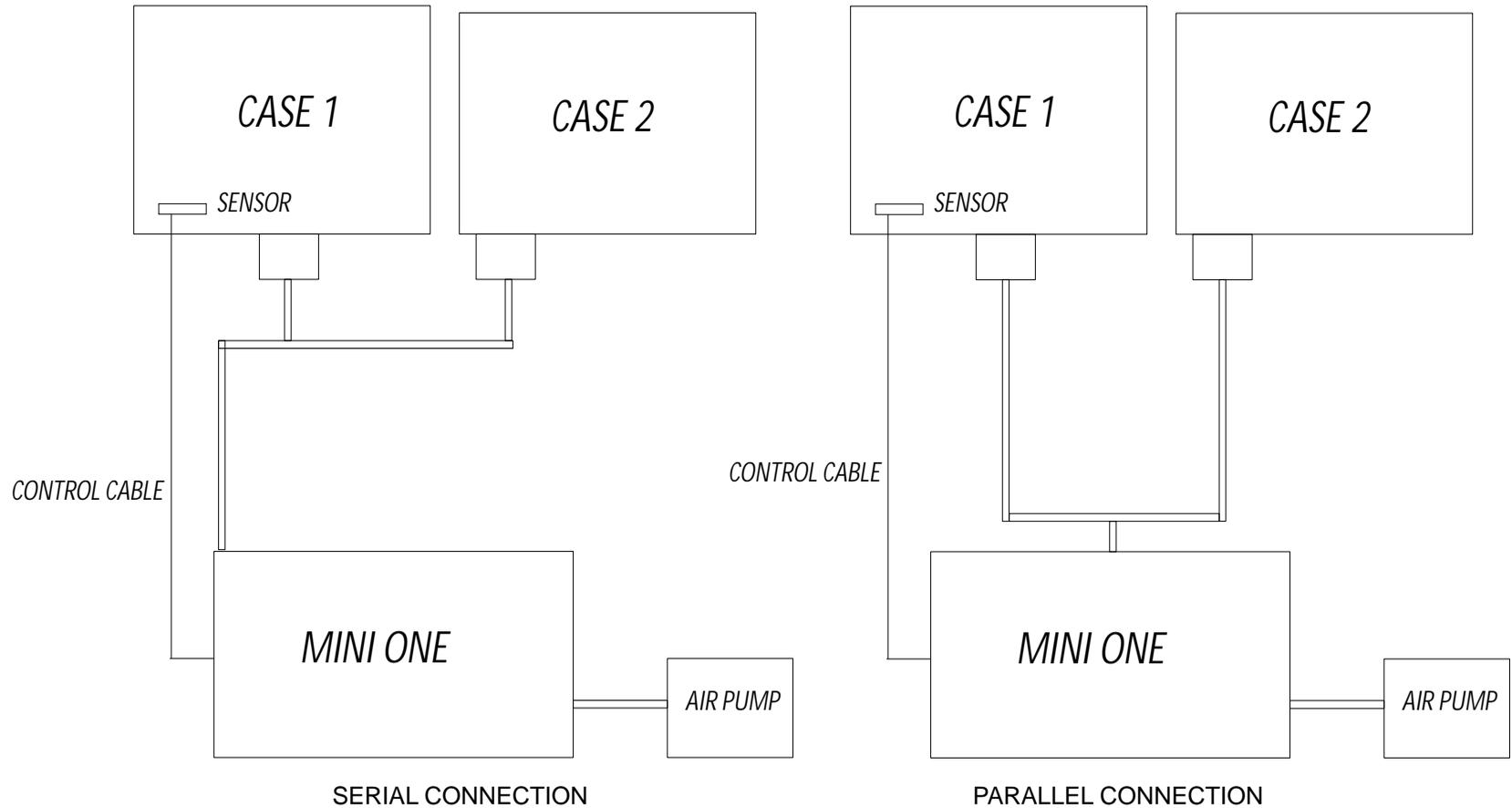
Length of hose connecting case with main unit should be no less than 3' - 1 m. Too short hose can cause an incorrect RH reading.

If hose longer than 10' (3.5 m) is needed, larger diameter hose (3/4") should be used.



MULTIPLE ENCLOSURES OPERATION

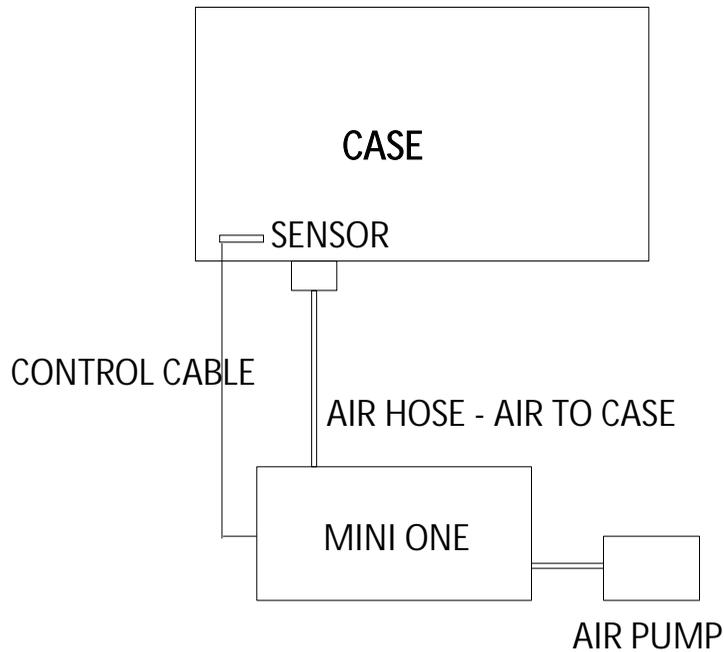
Multiple cases can be connected to the Mini One in two possible modes: "parallel" and "serial"



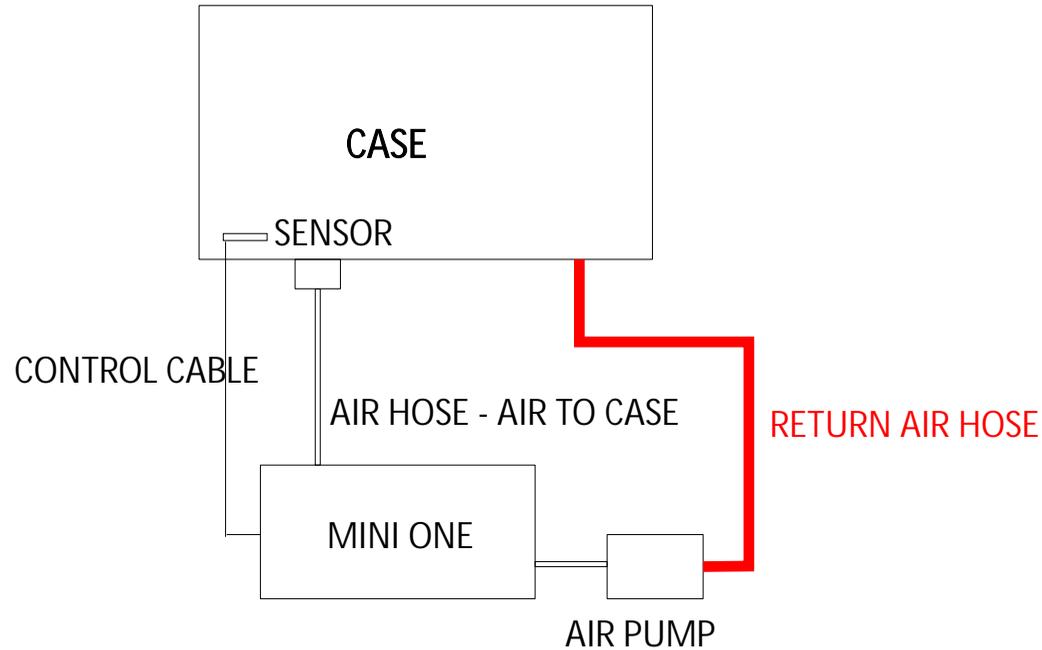
AIR RE-CIRCULATING MODE

As a standard, Mini One is installed as a positive pressure device. (no return air hose installed)
 In some situations the air re-circulating mode is a better option. In that mode one hose is delivering RH controlled air into the display case and another hose is returning air from the case to the air pump.

Since the air pump is delivered in positive pressure mode, it is necessary to make some modification to it. Please see page 35 for detailed instructions.



POSITIVE PRESSURE MODE

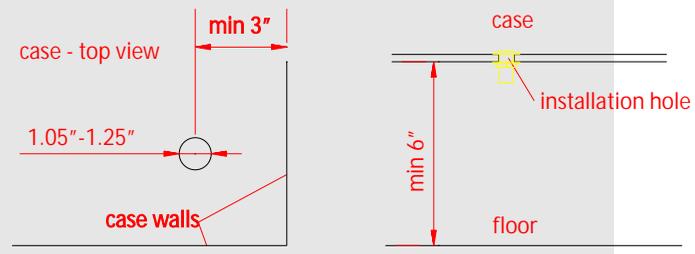


AIR RE-CIRCULATING MODE

BEFORE INSTALATION

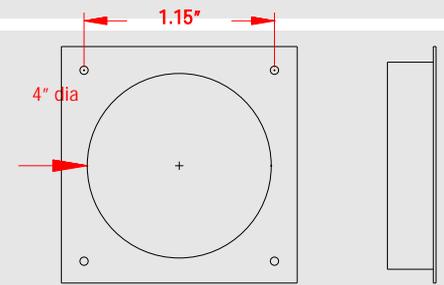
Hole for air entry unit.

Hole for valve installation must be located in the bottom of the case or in any of the walls. Hole diameter : 1.05" - 1.25" hole position: no closer then 3" from the wall. For installation and future service, 6" clearance is needed between the floor and the bottom of the case. Please contact manufacturer for alternate installations if those prerequisites cannot be meet.



Exhaust termination.

If a Mini One is installed in small enclosed area (ex. base of the case) its necessary to install a exhaust hose. The Mini One includes a exhaust hose and exhaust termination. See drawing for size of termination flange and necessary vent hole.



Proper ventilation.

If the unit is placed in an enclosed area, a source of fresh air for cooling must be provided. This should be an unobstructed vent or louver of at least 16 square inches / 100 cm²

External low water level light.

In addition to the front panel "low water: indicator, there is a possibility of installing an additional external LED light (ex. in the base wall). The supplied LED needs a 0.25" diameter hole for installation.



CONNECTING MAIN UNIT

Place the units on level surface. If units are to be stacked, place the pump module ABOVE the main module.

NEVER INSTALL PUMP MODULE BELOW MAIN UNIT.

Attach the air line and power supply connecting the main module to the pump module.



Connect the showcase air supply line, exhaust hose, control cable and power cord.

Ensure that the end of the overflow port drips into a wide flat tray, or an adequate container. (Some water will escape during filling, this is normal.)

Turn on the power using the switch on below the power cord receptacle. Slowly fill the reservoir with DISTILLED WATER. You will hear an intermittent noise as a water pump transfers the water from the reservoir to the treatment tank. Note the water level with LED level indicators; do not overfill.

Follow the detailed instructions below to set the desired humidity.

VENTILATION

If the unit is not enclosed, be sure that there is adequate air available for cooling. For most effective operation, do not allow ambient temperatures around the unit to get above 75 F / 24 C.

Should the unit be mounted in an enclosure (e.g. beneath the showcase), provide at least TWO ventilation holes. A flexible exhaust hose must be attached to the four inch / ten centimetre mounting on the rear of the unit, and directed out of the enclosure through one of the ventilation holes or warranty is invalid.

Adequate fresh air for cooling must be provided, through a hole (or holes) totalling at least 16 square inches / 100 sq. cm. All ventilation holes must be unimpeded (do not cover with any cloth, mesh, or perforated metal). Avoid re-circulating exhaust air by separating the holes as widely as possible. For example, provide an upper hole for exhaust and a lower hole for fresh air intake. Be aware of walls or obstructions which might trap and re-circulate exhaust air into the fresh air intake.



SENSOR INSTALLATION

Sensor should be installed inside the case. For best results, sensor should be mounted close to the air input.



Sensor.

AIR ENTRY PORT

Install supplied flange in the hole. [\(see hole specification\)](#)
As a standard, straight flange is supplied with the Mini One. If necessary, 90 degree flange, can be also supplied.

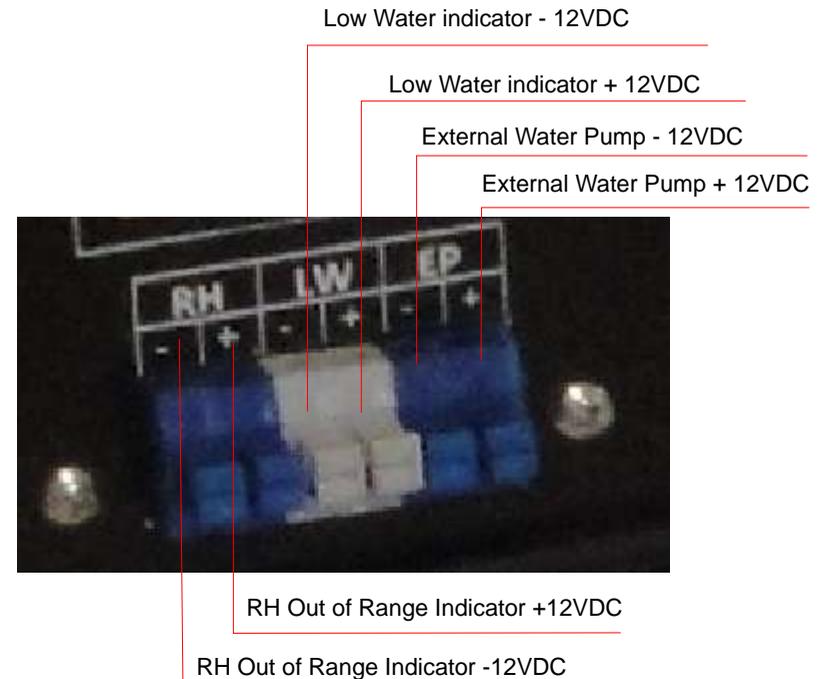


EXTERNAL CONNECTORS

The “RH out of range” contact, gives the user the option of connecting outside indicator e. g. LED light or other 12VDC device.

The remote "Low Water Indicator" light and “Out of Range” (RH) light must be connected with the proper polarity. The RED wire must be connected to the positive (+) connector and the BLACK or wire must be connected to the negative (-) connector.”

A connection for an External Water Pump is also supplied. This optional equipment pumps water into the Mini One from an external water tank. This option is recommended if ambient RH levels are considerably lower then the unit's RH set point.



Filling the Reservoir

A minimal amount of water must be maintained at all times in the microclimate generator's treatment tank for optimum performance. As water is transferred to the treatment tank from the reservoir, an optional alarm will indicate that water is needed in the reservoir. The reservoir may be filled at any time. Note that the unit will continue to operate with an empty reservoir until the water in the treatment tank is exhausted.



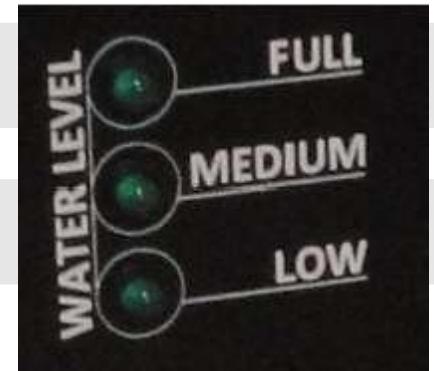
You will need a hose, a funnel or some other means of transferring water into the hose, a cloth to deal with spills and overflow, and about two liters of distilled or deionized water (do not use tap water).

Turn the unit on. Attach a hose to the Fill port and slowly add water through the hose. (You may wish to attach a funnel to the end of the hose, or create your own fill system.) You will hear the internal pump transfer the water to the treatment chamber, and you will see the water level change on LED water level indicator. Stop when the pump stops and the water reaches the "FULL" indicator. Excess water will flow back through overflow located below Waterfill connector.



\Some water will escape from the overflow port during filling. This is normal.

See below for details on using external water supplies to extend periods between replenishing the Mini One's reservoir.



OVERFLOW PORT

As the unit removes moisture from the air, the resulting condensate water will be deposited in the treatment tank reservoir.

When the tank is full, the excess water drip from the unit at the overflow port.

You may collect this condensate in a container, or simply allow it to evaporate from a shallow tray.

In most cases, a tray will allow all condensate to evaporate away with no need for draining the condensate pan.

You may extend the overflow port with a very short hose (less than 2 inches / 5 cm) to place the end in a more convenient location. The hose outlet should remain at the same level (or lower) as the overflow port.



ADJUSTING THE RH SETTING

The control panel indicates actual RH value.



The four buttons on the right are “P-Programm”, “Down”, “Up”, button “U” is not in use. To set the target humidity, press the “P” button, display change to the set mode showing alternately “SP 1” and target value eg. “50.0”.



Using up and down arrows, set desired value and press the “P” button. Display change to actual value.

Note that temperatures and sensor calibrations will vary, and it is unlikely that two humidity sensors side by side will ever agree.

We suggest you use the value indicated on the Mini One display as an approximate indicator of the RH of the air being supplied to the enclosure. (Variations in sensor calibration and air input temperature may influence the RH sensor's readings).

Use an accurate instrument in the case (near your objects) if you wish to have a reliable determination of your actual case environment. Adjust the Mini One output as needed to provide appropriate conditions in the enclosure.

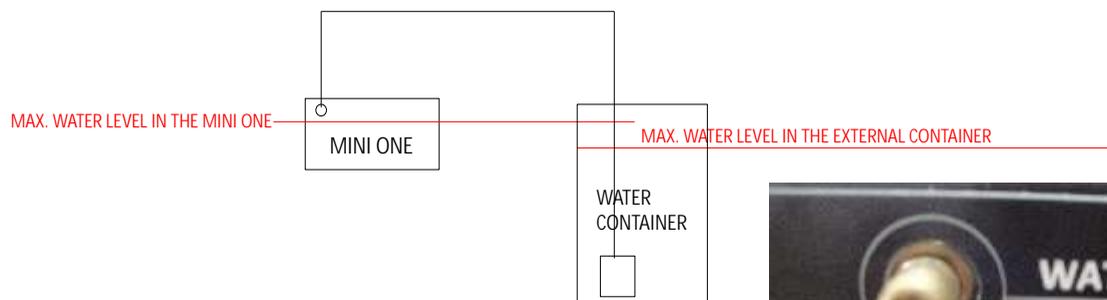
EXTERNAL WATER PUMP

As an optional accessory, we offer a remote water pump to use in an external reservoir (supplied by client). The water pump should be located in the bottom of the external reservoir, and must be connected through a water feed hose to the "Water Fill" fittings on the Mini One.

The electrical cable must be connected to the external connector located on the Mini One.

The pump will automatically engage to replenish the internal reservoir when the water level in the Mini One falls.

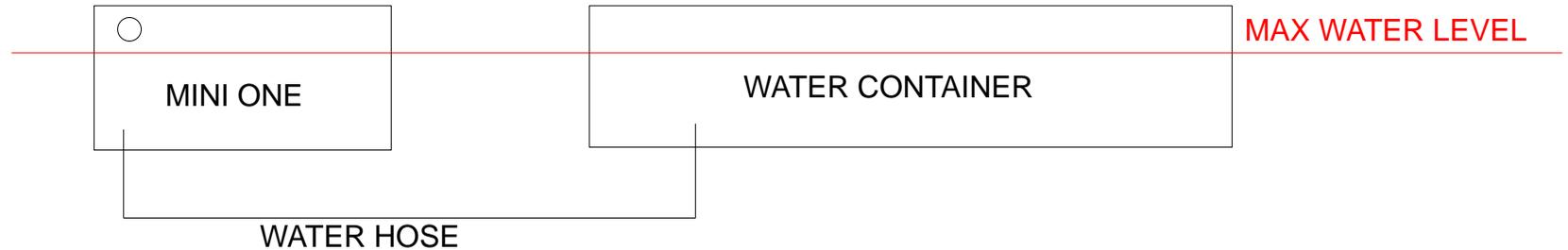
Notes: Water level in the external container, must be BELOW max. water level in the Mini One to exclude possibility of siphoning effect.



EXTERNAL, GRAVITY FEED WATER CONTAINER

As a optional accessory, we are offering a additional external water container which can be connected to drain connectors of the Mini One. Container must be placed on the same level as the Mini One and maximum water level must be no higher than max water level in the Mini One.

Please contact the manufacturer for more info.



Hose connecting external water container, must be connected to the drain fitting on the Mini One. Right valve must be always open when external container is in use.



AUTOMATIC WATER FEED

As an option we are offering a automatic water feed.

This option is available **ONLY** for installation of the Mini One in the machine room where there is an access to the water source and a drain.

Please contact the manufacturer for more info.



AIR RE-CIRCULATING MODE - PUMP ADJUSTMENT

Pumps are shipped in NON RECIRCULATING MODE. If pump will be used in recirculating mode, some modification is needed.

Brass or stainless steel plug located on the back wall of the pump, should be removed and replaced with a brass fitting supplied with the pump.



Also small hole on the top of the pump, must be blocked. Hole should be blocked with metallic tape supplied with a pump.



PUMP ADJUSTED TO USE IN RECIRCULATING MODE GENERATES HIGH NOISE IF HOSE IS NOT CONNECTED.

AIR PUMP FOR EUROPE AND OTHER COUNTRIES WITH 210-230 VAC POWER

Mini One for clients from countries equipped with 210-230 VAC is shipped with DC version of the air pump.

This version of the pump is connected to the 12 VDC connector located on the front of the machine, to the right of sensor and external connectors.



Air Pump Connector.



LIMITED MICROCLIMATE GENERATOR WARRANTY

This quality product is warranted to be free from manufacturer's defects in material and workmanship, provided that the unit is used under the normal operating conditions intended by the manufacturer, and in accordance with the Requirements for Proper Operation as outlined in this Installation and Operating Manual.

This warranty is available only to the client to whom the unit was originally sold by authorized distributor of Preservaech Inc., and is non-transferable.

TERMS OF WARRANTY

During the first year, any electrical parts of this product found to be defective, including any sealed system units, will be repaired or replaced, at warrantor's option, at no charge to the ORIGINAL purchaser.

To obtain service, contact Preservaech Inc. at the address below, who will provide you with instructions. Service must be performed by a qualified service technician, or with the express permission of Preservaech Inc. If service is performed on the units by anyone other than an authorized service depot or agent, all obligations of Preservaech Inc. under this warranty shall be at an end.

EXCLUSIONS

Save as herein provided by Preservaech Inc., there are no other warranties, conditions, representations or guarantees, express or implied, made or intended by Preservaech Inc. or its authorized distributors and all other warranties, conditions, representations or guarantees, including any warranties, conditions, representations or guarantees under any Sale of Goods Act or like legislation or statute is hereby expressly excluded. Save as herein provided, Preservaech Inc.

shall not be responsible for any damages to persons or property, including the unit itself, howsoever caused or any consequential damages arising from the malfunction of the unit and by the purchase of the unit, the purchaser does hereby agree to indemnify and save harmless Preservaech Inc. from any claim for damages to persons or property caused by the unit.

GENERAL PROVISIONS

No warranty or insurance herein contained or set out shall apply when damage or repair is caused by any of the following:

- 1) Damage in transit or when moving the appliance.
- 2) Improper power supply such as low voltage, power surges, defective wiring or inadequate fuses.
- 4) Accident, alteration, abuse or misuse of the appliance such as an inadequate supply of cooling air, or abnormal operating conditions.
- 5) Use of a unit that has been optimized for a particular application in another application that has not been approved by Preservaech Inc.
- 6) Fire, water damage, theft, war, riot, hostility, acts of God such as hurricanes, floods etc,
- 7) Service calls resulting in customer education.

WARRANTY SERVICE

Proof of purchase date will be required for warranty claims; so, please retain bills of sale. In the event warranty service is required, present a facsimile of the cover of this document to our AUTHORIZED SERVICE DEPOT. Please contact our head office for service instructions.