# GrowWall



## User Manual

Version 3.0



## **WELCOME**

Thank you for purchasing OPCOM GrowWall. Please follow this User Manual and Planting Guide to assemble your GrowWall and plant your first garden.

This manual is a guideline to help you quickly learn the basics on how to plant with OPCOM Farm GrowWall. Final results may change according to the variety of seeds used, plant selection, and your indoor environment.

Your GrowWall will do much of the work and save your time in the process of growing a crop of up to 75 plants. It is a tool to grow plants from seeds to harvest, simply and in a clean environment. Have peace of mind that your food is grown in a pollution and pesticide free environment under your control.

OPCOM Farm GrowWall helps automate the process of taking care of your plants during their growth stages. With attention from you and a bit of experimentation, you will quickly find out how to achieve the gardening result you want. For more product information, to register your OPCOM membership, to receive updates on new products, and to purchase supplies and seeds, please visit our website: <a href="https://www.opcomfarm.com">www.opcomfarm.com</a>

OPCOM Farm developed our line of indoor gardens in dedication to a healthy environment with safe food. We invite you to become a professional indoor hydroponic farmer!

Enjoy Your OPCOM Farm!





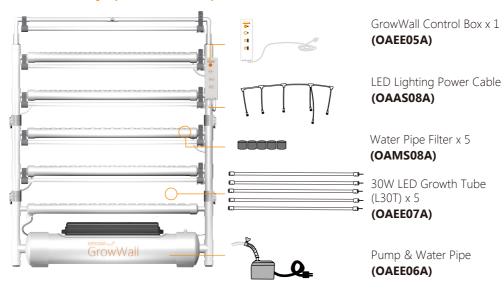
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## A: Assembly

Please check all accessories listed here before starting setup.

#### 1-1 Main Body - pre-assembled parts



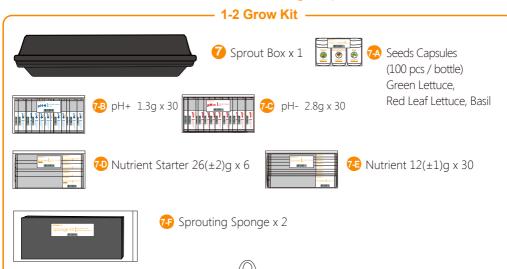
### **Accessories** Packed in the Sprout Box







#### Please check all accessories listed here before starting setup.



#### 1-3 Planting Accessories Packed in the Water Tank

Tweezers



8 Seedling Sponge(50 x 6)



Growing Basket x 100

#### 1-4 Manual



**10** Warranty Card



11 Ouick Guide Manual



Optional Accessories Kit



EC and pH Meter Set with Bag

Planting Q&A

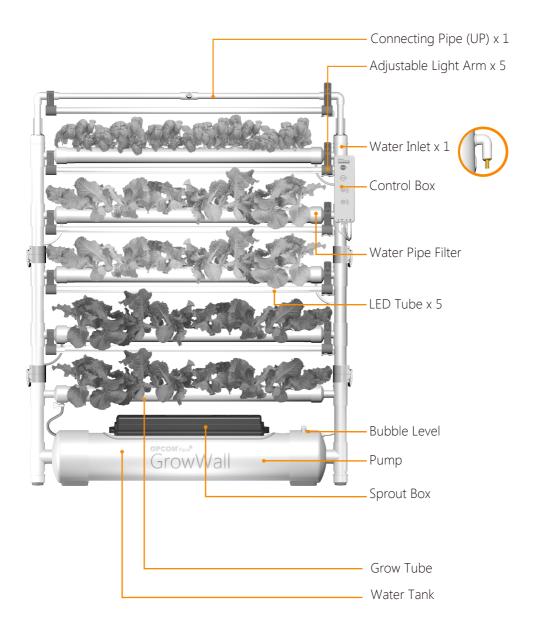
### Note

- Keep seed capsules refrigerated around (5°C / 41°F) after opening for better storage condition.
- Use dry hands when taking out seed capsules.
- Opcom cannot guarantee for results of other sources' seeds. Use Opcom grow kit supplies for best results.
- A germination rate of seeds of  $70\% \pm 10\%$  is normal (depending on varietal of plant).





## 2. Description







## 13. Caution



Keep indoors at room temperature 41-90 °F (15-32°C).



Please use 5 LED Lamps total under 1000W.



To avoid electric shock, do not touch plugged-in appliance while in contact with faucet or water line



Unplug unit if not in use.



Mind children's use of unit, and ensure that plant nutrition and other supplies are not ingested.



Fasten securely to wall to prevent tip-over accident.



Keep away from fire and chemicals.



Not for outdoor use.





## 4. Set up Process

Please visit the GrowWall page at www.opcomfarm.com/growwall, or scan the QR code on the right, to watch the assembly video.



#### Prepare List for Set up:



- Step 1. GrowWall consists of four numbered modules that fit together on top of each other.
- Step 2. Put the four modules flate on the ground.

Step 1.



Step 2.







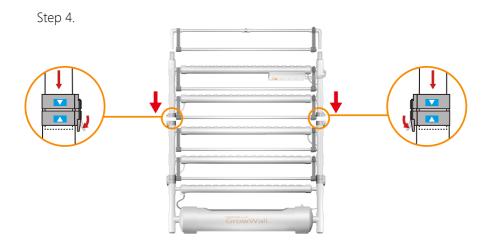
Step 3. Starting with R1, L1 on the bottom, insert the two vertical tubes of R2, L2 into the corresponding tubes on R1, L1.

Align the holes on the two parts, and secure each of the two junctions by inserting a plastic rivet, using a rubber mallet.

NOTE: Many accessories and parts, such as the rivets, have been placed inside the sprout box for shipping.



Step 4. Repeat the process with R3,L3 on top of R2,L2 the same way.





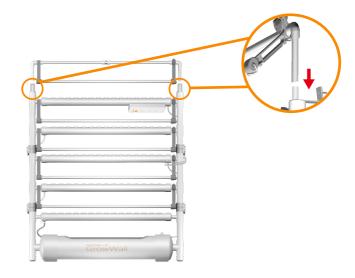


Step 6.

Step 5. Place the wall bracket on top of R3,L3. Place the hollow plastic peg into the round hole in the bracket as shown. Put the screw into this tube, and with a screw driver, affix the tube and the bracket to the unit.



Step 6. R4,L4 gets inserted on top of the plastic pegs, as shown.





Step 7. Place the unit stand against the wall.

Step 7.

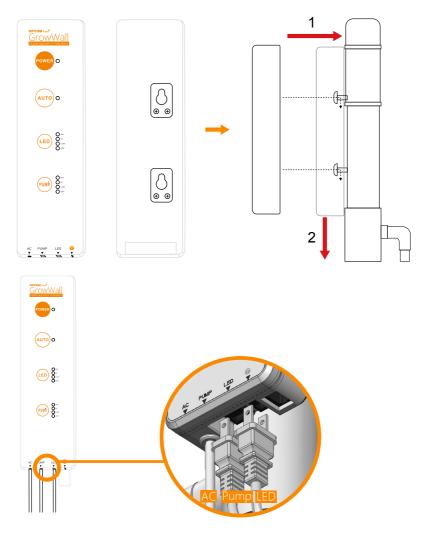






### Step 8. Install The Control Box

- 1. Attach the control box by aligning the holes on the back with the screws on the right side vertical pipe, and then pushing down to lock in place.
- 2. Ensure the pump and LED lamps' power cables were plugged into the slot on the control box.

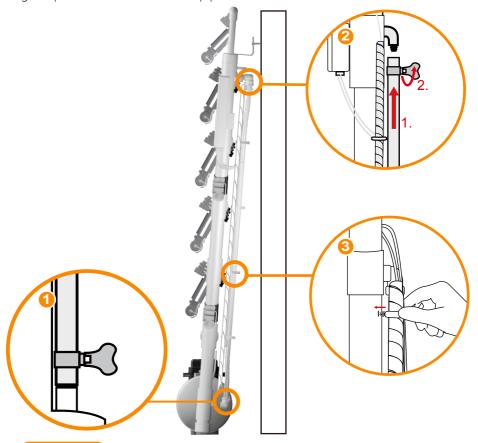






#### Step 9. Tidy up the Tube and Cable

- 1. Ensure that the tube is connected to the pump, and secured with a tightened ring fixture. Turn clockwise to tighten.
- 2. Attach the other end of the tube to the water inlet. Turn clockwise to tighten.
- 3. Plug the plastic tie into the vertical pipe.



Note

These parts were pre-assembled for your convenience; please check that each item is fastened.

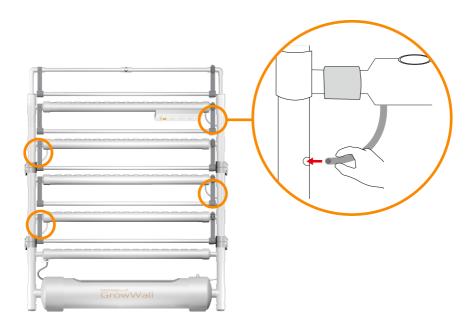
This will also serve as a reference guide; should you disassemble/reassemble your unit in the future.





#### Step 10. Ensure the tube are connected

The grey PU tube from the grow tube were pre-connected to vertical pipe. Ensure the depth of insertion is more than 0.4 inch (10mm).



#### Note

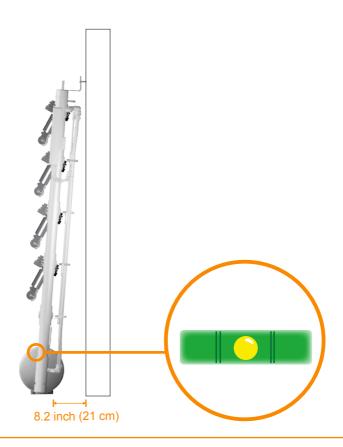
Ensure that the tube is connected firmly before turning the unit on, failure to do so will result in leaking.





#### Step 11. Secure your GrowWall to the wall

- 1. The distance to the wall should start at 8.2 inches (21cm). Adjust as necessary using the bubble level (bottom right of the unit), keeping the air bubble between the 2 lines.
- 2. Attach to the wall with the included anchors and screws.



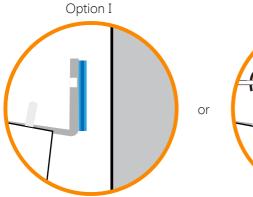
Note

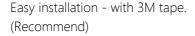
Adjust the distance to the wall, if the height is not enough for GrowWall (65 inch).

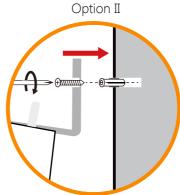




3. To secure the bracket to the wall, first make a mark on the wall using 3M tape to stick to the wall (Recommend) or using the bracket as a guide. Drill a hole (using a 0.25 inch (5mm) bit) on the mark and insert the anchor. Expose the adhesive strip on the back of the bracket, align the anchor and the bracket hole insert the screwdriver with the Phillips head.







Firmly installation - drill bracket hole.

#### **⚠** Caution

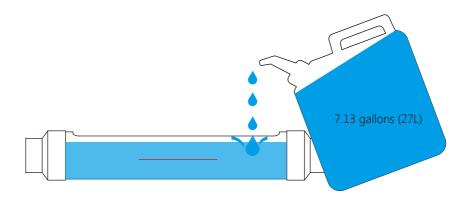
Ensure that the bracket has been firmly bolted to the wall, to avoid tip-over accidents.





## 5. Preparing Step 1. Add Water

Add water until the water level exceeds the red line, approximately 80% full of water tank or 7.13 gallons (27L). Do not overfill and always maitain the water above the red line.

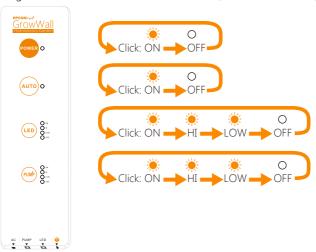






#### Step 2. Turn Power on and Test Unit

Press the POWER button. Confirm that the LED lights are on and that the water pump motor is running. Do not start the unit without water, as this will damage the pump.



Control Panel	Mode	Time (On / Off)	
	AUTO	Normal	(12H / 12H)
	ON	ON	(24H / 0H)
LED	HI	High Duty Cycle	(16H / 8H)
	LOW	Low Duty Cycle	( 8H / 16H)
	OFF	OFF	( OH / 24H)
	AUTO	Normal	12 cycles/day
	ON	ON	48 cycles/day
Pump	HI	High Duty Cycle	4 cycles/day
	LOW	Low Duty Cycle	2 cycles/day
	OFF	OFF	0 cycles/day
			* 10 mins/cycle

#### Note

Please power and turn on GrowWall at 6-9 AM to meet daytime / night cycle time. Most plants can be grown using the AUTO mode. For specific varietals or if you want to experiment on your own, you can manually control the timing of the LED growth lamps and pump.

## **B**: Planting

## **B1.** Sowing stage

Stage	Time afer planting	LED	Pump	Note
Sowing	Day 0~ Day 7	OFF	OFF	• Remove the top half of the seed capsules.
Stage	(Starting to sprout)			<ul> <li>Check the sprout every day and make</li> </ul>
				sure the sponges are always wet.

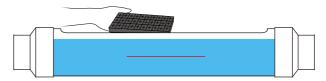
#### Step 1.

1. Find the black seedling sponge from the water tank, which is pre-cut for planting use. Refer to below table for sponge quantity and planting numbers. The germination rate of seeds is around 70%.

#### NOTE: The germination rate may be affected by climate, environment and the variety of plants.

Plant Size	Small
Sponge Number	105
Planting number	75
How to Set up	
Plant Size	Medium-Large
Plant Size Sponge Number	Medium-Large

2. Wet the seedling sponges in the water of the water tank and gently squeeze to make fully wet.







#### Step 2.

Put the seedling sponges to the sprout box, then add some water to keep them fully wet.



#### Step 3. Seed Sowing

#### If using OPCOM Farm seed capsules:

- 1. With completely dry hands, take out seed capsules from capsule bottle.
- 2. Soak the sponge completely, then insert seed capsules vertically halfway into the middle of each cross-opening in the seedling sponge.
- 3. Put any unused capsules back in bottle and store in the refrigerator immediately.



Make sure cross-opening at the top of the sponge is facing up.

#### If using non OPCOM Farm seeds:

Insert 3-4 seeds into the middle of each cross-opening of each sponge. The seeds should be placed just below the surface of sponge.

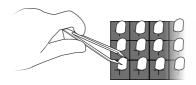




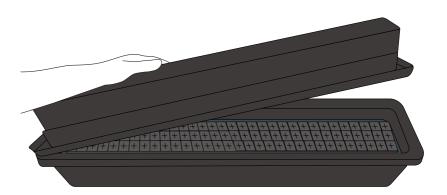
#### Step 4.

After 30 minutes of seed sowing, remove the top half of the seed capsules with tweezers. The bottom half will have dissolved into the sponge, depositing the seeds in the perfect location for growing.

NOTE: If you don't remove the seed capsule tops, they may inhibit sprouting rate.



Step 5. Cover the lid of sprout box, and put the sprout box onto the water tank.







## B2. Seedling stage

Stage	Time afer planting	LED	Pump	Note
Seeding	Day 7~ Day 14	ON		• Ensure seeds germination rate>70%.
Stage	(Germination			• In each sponge, keep strong plants and
	rate>70%)			cut the other weak plants (refer to the
				drawing below).
				<ul> <li>Adjust LED lights position.</li> </ul>
				• Ensure EC & pH value.

#### Step 1. Sprout and Transplant

The seedling stage should give young plants the best conditions to start their growth. Please refer to the instruction below.



## Step 2.

Separate the seedling sponges. Put each sprout sponge into a growing basket. Then move them to the grow tube.





The sponge should touch the bottom of the basket.

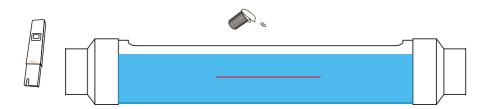




#### Step 3. Add Nutrition and Test the Water

- 1. After adding water, put the Pump in AUTO mode.
  - During the operation of the pump, the tank water level begins to decrease, after every layer of planting tube has filled with water. Pump stops after 10 minutes in AUTO mode.
  - Each layer of planting water will slowly drain. In order to let plant roots breathe, each layer of water will flow back to the tank. This is called the ebb-and-flow method.
  - At this point the tank water level will rise again.
  - Do not add water until the pump has stopped for 15 minutes.
  - After 30 minutes, confirm that the water of each planting tube has returned to the tank, and keep the water up to the Red Line.
- 2. Add Nutrients (1 Nutrients Starter) to the water tank.
  - After the pump runs for 30 minutes, the nutrients will be mixed up well and ready for test.
  - Test EC and pH level.
  - Make adjustments to the nutrition and pH level. Refer to pages 28-29 for recommend amounts.
  - Ensure EC between 1000-2000µS/cm(=1.0-2.0 ms/cm).
  - Ensure pH between 5.5-6.5.

To maintain good conditions for plant growth, be sure to check the pH as well as EC (Electrical Conductivity) weekly! (Refer to pages 28-29). And always maitain the water above the red line.



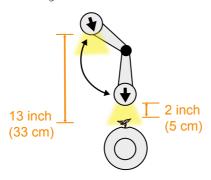




#### Step 4. Adjust the Position of the LED Lamps

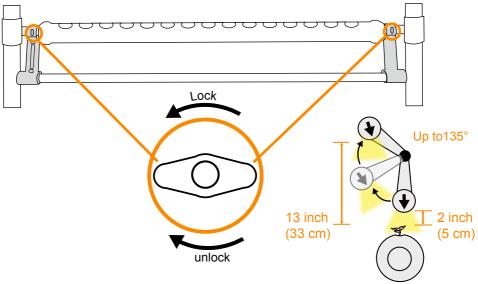
#### 1. Distance Adjustment

Each LED lamp has an adjustment lock on each side. You can adjust the distance of the growing tube from 2 to 13 inches (5-33 cm) to accommodate the growth stages of the plant and give the optimal level of brightness.



#### 2. Angle Adjustment

Both sides of the LED tube are in a rotating holder to allow you to optimize the direction of the light. This is part of OPCOM's patented design to make the GrowWall flexible to accommodate different plants and their growth.



## **B3.** Growing Stage

Stage	Time afer planting	LED	Pump	Note
Growing	After Day 14	Auto	Auto	When young plants grow to 3-4 inches
Stage				height, change control box to AUTO mode.
				<ul> <li>Maintain EC &amp; pH value.</li> </ul>

Once a week, check the water level and refill as needed. Also test the water's pH and EC levels and adjust as necessary. For more information, see pages 28-29.

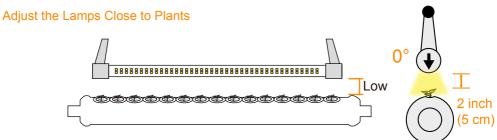
Below are images of what to expect as your plant progresses through the growth stages. Have fun and enjoy experimenting with your plants at home!



The picture shows the growth status of lettuce around the 3rd - 4th week. (Growth pattern varies by seed type).



The picture shows the growth status of lettuce around the 5th week. (Growth pattern varies by seed type).



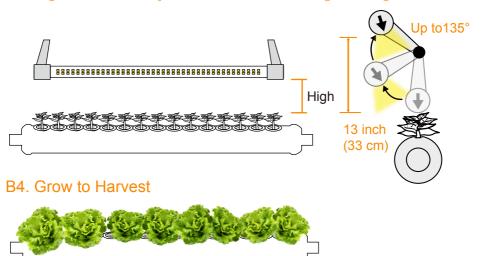
Adjust the LED light close to the young plants, no more than 2 inches away.

Follow instructions on page 21, adjusting the height using the release mechanism on each side, and rotating the LED light tube to direct the light towards the plants.





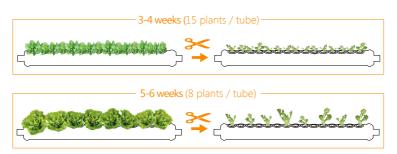
The light tubes can be adjusted to accommodate their growth stages.



When plants have reached full growth, you can enjoy your harvest. If plants start getting crowded and interfere with each other, harvest the large ones, to give the others more space to grow to full size

## C: Optional

## C1. Regrowing





For certain plants like lettuce, you may be able to get a second growth cycle and harvest by cutting the leaves off for consumption and keeping the roots in the reservoir. Cut off the large leaves, and leave 2-3 young leaves in the middle for regrowing. We recommend regrowing the plants 3-5 times ,then start a new planting cycle.





### C2. Growing Sprouts

Place sprout box on water tank. Moisten a sprouting sponge and spread the seeds on top of it. Connect the water tube to water inlet and follow instructions below.

It will take around 7 days to harvest. Details for growing sprouts and length of time to harvest should be described on sprout seed packages.

1. Put seeds in a bottle of warm water (max:105°F / 40°C) for 12~24 hours to start the process. Please change the water at least one time.



- 2. Put a wet sprouting sponge into the sprout box (black sprouting sponges are included in the box).
- 3. Spread sprout seeds from the bottle (discard the water) onto the wet sponge.



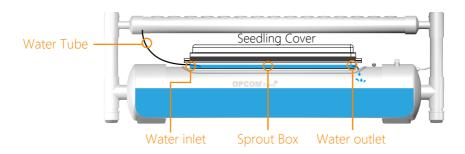
### Recommended Quantity for the Sprounts

Wheatgrass	Alfalfa Sprouts	Daikon Sprouts	Buckwheat Sprouts
60g	25g	50g	80g





4. Lay down seedling cover to cover all seeds. Place the sprout box on top of the water tank.



5. After 1 days, check the status of your sprouts.

If they have green sprouts, take off the seedling cover and expose to light.

If they are varietals such as beans which have no green sprouts, keep covering it with the included Seedling Cover Box.

Keep the sponge wet at all times.

For green sprouts such as wheatgrass, take off seedling cover and let light onto plants. For no edible green parts sprouts such as bean sprouts, cover the seedling cover.

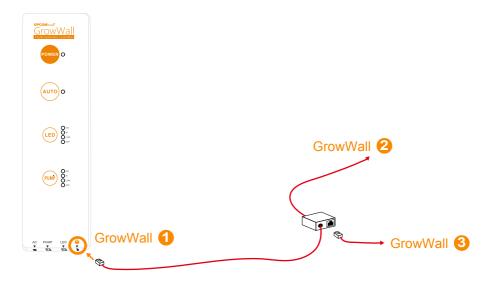


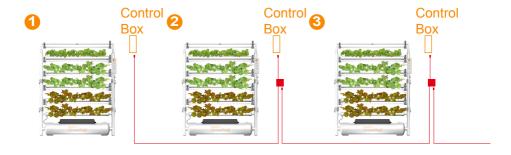
For green sprouts.

#### Note

During a planting cycle (4-5 weeks), you can grow sprouts 3-4 times. Details for growing sprouts and length of time to harvest should be described on sprout seed packages.

## C3. Synchronization Control Function





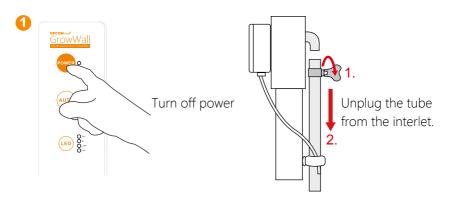
#### Note

The synchronization cable allows you to synchronize the control of up to 10 GrowWalls. You can use any of the GrowWalls' control boxes to change all the units at one time.

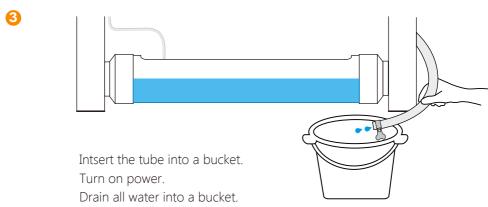
## **D: Maintenance**

## **D1.Change Water**

After a cycle of planting, you may want to change water, or clean the unit.



Wait for 15 minutes, let the water drain back to the tank.



After about 15 minutes, the water will have left the unit.

Turn off the machine immediately when water is out to avoid air bubbles to enter (water pump will get damaged if air bubbles enter for a long time).

- Clean the appliance with a dry cloth.
- If there is a serious alage problem, spray with alcohol and wait for 3-5 days, 6 then start a new planting cycle.





## D2. Check EC & pH

In order to keep good growing conditions, check and adjust EC/pH weekly.



#### Please maintain EC between 1000-2000µS/cm (=1.0-2.0 ms/cm)

Status	0.4-0.6	0.6-0.8	0.8-1.0	1.0-2.0	over2.0
Nutrient	(add 2pcs)	(add 1pcs)	(add	standard	add water
			1pcs)	range	



Please ke	eb bu pe	etween :	0.5 - 0.5						
Status	3.5-4.0	4.0-4.5	4.0-4.5	5.0-5.5	5.5-6.5	6.5-7.0	7.0-7.5	7.5-8.0	
pH+	(add 4pcs)	(add 3pcs)	(add 2pcs)	(add 1pcs)	Standard range	d			
pH -					Standard range	d (add 1pcs)	(add 2pcs)	(add 3pcs)	

## Nutrient Solution EC / pH Adjustment

- We recommend measuring the EC / pH when first planting, and maintaining water quality weekly. EC/pH can be changed by plant variety, please refer to the manual for each seed pack.
- Please follow the result of the EC& pH meter to adjust with Nutrition, water or pH+/- to meet the suggested standard.
- Results may vary with different environment and climates; the above table is for reference only.

#### Note

The above table is just for users' reference, as specific plant needs may be affected by climate, environment and the variety grown.

### D3. EC / pH Meter Use and Calibration



The pH and EC meters come with a convenient, protective bag that you can hang by your GrowWall.

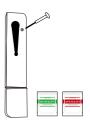
#### pH meter

#### Usage:

Remove the protective cap. Turn the meter on by sliding the black button to the left. Immerse into water up to the max immersion level. Stir gently and wait until the display stabilizes enough to read the result. Turn off pH meter and clean the electrode with pure water. Wipe the electrode dry and replace the protective cap. (Measurement Range: 0.0 - 14.0 pH; Temperature 32-122°F / 0-50°C; Humidity Max 95%)

Calibration: (pH meter were pre-calibrated before shipping.) After changing batteries, immerse the meter in a pH 6.86 buffer solution and allow reading to stabilize. Using a small flat screwdriver, modify the screw on the back of the unit to adjust the calibration reading to 6.9.

Also, immerse the meter in a pH 4.01 buffer solution and allow reading to stabilize. Using a small flat screwdriver, modify the screw on the back of the unit to adjust the calibration reading to 4.0.



#### Maintenance:

Keep the electrode clean and cover the electrode protective cap. Take out the batteries when not in use for an extended amount of time. Don't use distilled or deionized water for storage purposes. When the meter can't be turned on / off or the display fades, take out the batteries and replace with new battery.

#### EC meter

#### Usage:

Unplug the electrode protective cap. Turn the meter on and immerse into water. When reading is stable, press "Hold" button and take it out of the solution to read. After reading, turn off the meter and clean the electrode with pure water. Wipe the electrode and replace protective cap. (Measurement Range: TDS: 0-99990us/cm, Temperature  $32 - 176^{\circ}F/0 - 80^{\circ}C$ )

#### Maintenance:

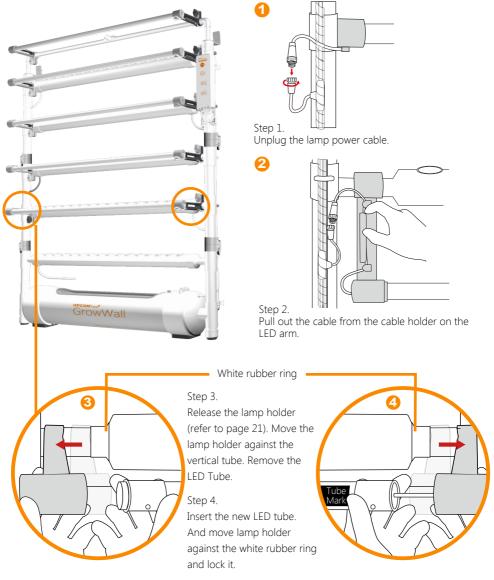
Keep the electrode clean and always cover with protective cap. Please take out batteries when not in use for a long time, and replace with new battery.





## D4. Change LED Tube

The lamps are pre-assembled, you can replace the LED tube if necessary. How to replace the LED tube:







## E1. Troubleshooting

Issue	Checkpoints / Solution
Lamps are not	☑ Make sure all power cables are connected.
lighting up	☑ Power button is turned ON.
	☑ Make sure LED status is not OFF.
	☑ If on AUTO, HI or LOW there will be periods of time during a 24-hour cycle
	when lamps are off. See page 15 for cycle descriptions.
	☑ If a lamp has burned out or does not work, replace with a new OPCOM
	LED tube (OAEE07A).
Pump is not working	$\ensuremath{{\sc oldsymbol{eta}}}$ Make sure the pump's cable is correctly plugged into the control box.
	☑ Make sure Pump status is not OFF.
	$\ensuremath{{\sc  imes}}$ If on AUTO, HI or LOW there will be periods of time during a 24-hour cycle
	when lamps are off. See page 15 for cycle descriptions.
	☑ If the pump still does not work, replace with a new OPCOM pump
	(OAEE06A).
	Refer to pump box for installation.
Pump has a	$\ensuremath{\square}$ Pump may give off a buzzing sound in the beginning due to air inside the
buzzing sound	pump. After a minute with water running through the pump, this should
	be reduced.
	☑ Too low of a water level in your GrowWall may have resulted in air
	entering pump. Over time this may shorten the life of the pump.
	Please maintain correct water level at all times.
	☑ If pump is failed, replace with a new OPCOM pump (OAEE06A).
	Refer to pump box for installation.
The lamp or the	☑ Opcom Farm's control box is designed with Auto, HI and LOW cycles, which
pump stopped	will turn the lamps and the pump on and off at certain intervals. This is to
working after a	mimic an outside daily cycle, offer the best growing condition for your
few hours	plants, and save you energy.
	☑ Check the manual page 15 for cycle descriptions.





#### E2. GrowWall Q&A

#### Q1: Pump was accidentally running without water. Is it damaged?

A1: This can shorten the life of the pump. Maintain proper water level. Always keep water above the red line.

#### Q2: What type of lamps can be used in the GrowWall?

A2: The lamps provided with your GrowWall is standard OPCOM 30W (L30T) LED Growth Tube. This is suitable for most plants' growth. You may also use OPCOM Professional LED Growth Tube 65W (L65T) to accommodate special growth needs.

To get the most updated planting tips and ideas, please go to our website www.opcomfarm.com to register as an OPCOM member, and you will receive advanced growing tips, new ideas and inspiration via email.

For further questions, please email us at info@opcom.com





## **Register with OPCOM**

Please register with <a href="https://www.opcomfarm.com">www.opcomfarm.com</a> to receive tips and ideas on how to grow a variety of vegetables, sprouts, herbs and fruits using your OPCOM Farm appliance. We are continuously adding more usage ideas to our website, as part of OPCOM Farm's mission to provide you with tools to source healthy, clean, living foods.

#### **MIMPORTANT SAFETY INSTRUCTIONS**

When using an electrical furnishing, basic precautions should always be followed, including the following: Read all instructions before using (this furnishing).

#### **DANGER** – To reduce the risk of electric shock:

1. Always unplug this furnishing from the electrical outlet before cleaning.

**WARNING** – To reduce the risk of burns, fire, electric shock, or injury to persons:

- 2. Unplug from outlet before putting on or taking off parts.
- 3. Close supervision is necessary when this furnishing is used by, or near children,invalids, or disabled persons.
- 4. Use this furnishing only for its intended use as described in these instructions. Do not use attachments not recommended by the manufacturer.
- 5. Never operate this furnishing if it has a damaged cord or plug, if it is not working properly, if it has been dropped or damaged, or dropped into water. Return the furnishing to a service center for examination and repair.
- 6. Keep the cord away from heated surfaces.
- 7. Do not use outdoors
- 8. Do not operate where aerosol (spray) products are being used or where oxygen is being administered.
- 9. To disconnect, turn all controls to the off position, then remove plug from outlet.
- 10. For loading always put heavier items at the bottom and not near the top in order to help prevent the possibility of the furnishing tipping over.
- 11. Each surface intended to support a load shall have a corresponding statement in the use instructions specifying the maximum intended load for that surface in pounds(kilograms).

#### SAVE THESE INSTRUCTIONS

For more information, please visit WWW.Opcomfarm.com



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