

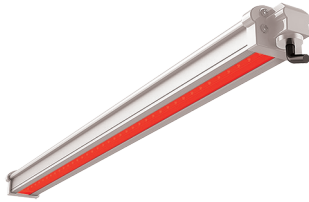


## **ENHANCERS**

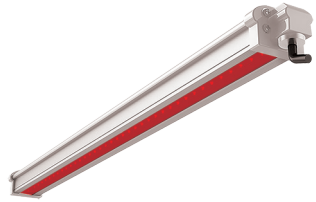
INSTRUCTION MANUAL



UV-A ENHANCER







DEEP RED ENHANCER



FAR-RED ENHANCER

## PRODUCT SPECIFICATIONS

Product Code	M4650	M4653	M4656
Product Name	UV-A Enhancer	Deep Red Enhancer	Far-Red Enhancer
Spectrum	UV-A	Deep Red	Far-Red
Power	30W		
Voltage Range / Frequency	100-277V ~ 50/60Hz		
Current	Amp @ <b>120V:</b>	0.25	
	Amp @ <b>208V:</b>	0.14	
	Amp @ <b>220V:</b>	0.14	
	Amp @ <b>230V:</b>	0.13	
	Amp @ <b>240V:</b>	0.13	
	Amp @ <b>277V:</b>	0.11	
PF	>0.95		
THD	<10%		
Thermal Management	Passive		
BTU	102		
Dimensions (L x W x H)	600x57x39mm (23.62"x2.24"x1.53")		
Weight (Driver Included)	1.0±0.3kg (2.2±0.66Lbs)		
Working Temperature	0°C to 40°C (32°F to 104°F)		
Storing Temperature	-40°C to 70°C (-40°F to 158°F)		
IP Rating	IP65		
Certificates	   		
Warranty	3 Years		



## PRODUCT INFORMATION

Use Hortitek's Enhancer range in combination with Hortitek Growboard to produce an optimal lighting spectrum.

### UV-A

*Grow more flavourful and potent plants.*

Enhance your light spectrum by supplementing your grow room with the Hortitek UV-A Enhancer.

#### **UV-A and Plant Growth:**

Natural sunlight contains UV spectrum in a typical ratio of 95% of UV-A to 5% of UV-B. UV-A can increase plant biomass and enhance the production of secondary metabolites. UV-A also has similar effects to the blue light spectrum on plant growth. The blue light spectrum produces shorter more compact plants with hardened growth.

#### **UV-A Usage:**

We recommend supplementing UV-A throughout the full life cycle for your plants alongside your main lighting fixture.

**Disclaimer:** Different plant species can tolerate different amounts of UV Radiation. UV-A radiation is harmful to plants when too intense or used in excess. If prominent damage to your plant occurs, reduce the UV-A exposure time.

### Deep Red

*Grow faster, yield more.*

Enhance your existing lighting fixture with the Deep Red enhancer to get the most out of your plant.

#### **Deep Red and Plant Growth:**

The highest rates of photosynthesis occur in the red spectrum. Red light promotes plant cell expansion, seed germination, flowering and ripening. Use Deep Red light to improve photosynthesis, biomass and yield of your plant.

#### **Deep Red Usage:**

Adding deep red light will increase the photosynthesis in any stage of plant growth. However, a high ratio of red to blue light in the vegetative stage can reduce plant density. Therefore we recommend supplementing Deep red throughout the flowering cycle to ensure the greatest benefit to your grow.



## **Far-Red**

*Grow bigger, flower quicker, yield more.*

### **Far-Red and Plant Growth:**

Far-Red spectrum has three main effects that can be beneficial to your grow depending on your plant species.

**Emerson Effect:** Far-Red cannot drive photosynthesis by itself. Far-Red and Deep Red need to be used simultaneously to produce the Emerson Effect. This effect increases the rate of photosynthesis resulting in better plant growth and yield.

**Flower Initiator:** Sunrises and sunsets naturally produce a Red to Far-Red ratio. During Sunset, the sky changes from Red to Far-Red, and as Far-Red becomes more prominent a plant response is triggered. The plants response is caused by photoreceptors called phytochromes, these absorb the red and Far-Red light.

The phytochromes change the plants state between active and inactive depending on ratio Red to Far-Red. Naturally, this process takes 2-2.5hrs to swap between active to inactive during times of darkness (lights off). By using Far-Red this process only takes 15-30min.

Far-Red can then be utilized to put your plants into an inactive state quicker, tricking your plants into thinking it has had more dark hours. This allows your plant to flower with less hours of darkness, therefore increasing the light hours and yield of your plant in flower.

**Shade Avoidance Response:** Plant growth is dependent on light energy intake, which makes it competitive when neighbouring plant canopies block the light they need for survival. Plants have evolved mechanisms that enable a response to escape the shade. This mechanism is the phytochromes, which detect the red to Far-Red ratio.

The inclusion of a high Far-Red to Red ratio to a full spectrum, can have an expansion effect of increased leaf area, internode length and elongation. (Elongation is not desired by growers but has a trade-off to increase in light interception, with larger leaf spans, to promote further growth).



### **Far-Red Usage:**

We recommend implementing Far-Red into your grow in two ways. The first way is to supplement Far-Red alongside your main fixture to get the expansive plant response (Emerson effect/Shade avoidance response).

The second way is to use the Far-Red LED 20-30min after lights off to put your plant to sleep quicker, helping your plant flower with fewer dark hours and maximise daytime photosynthesis.

Optimal plant growth is achieved by using well balance complete lighting spectrum. This implies that there is no single wavelength that is the best for plant growth. The effects of one wavelength can be enhanced or counteracted by other wavelengths. Therefore, undesired results may be induced by improper usage and incorrect ratio of lighting spectrum.

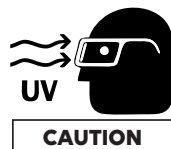
It is important to know the effects of the enhancers and how to use them to improve your existing lighting spectrum.

## **ENHANCER SAFETY NOTES**

- Ensure that there is no visible damage before installing or using this product.
- Keep away from hot objects and open flames.
- Avoid touching the ENHANCERS during operation.
- Do not look directly into the ENHANCERS during operation.
- Ensure that selected power supply is switched OFF during installation.
- Do not install underwater or in water soaked areas.
- Do not use ENHANCERS if power cable is damaged.
- Do not attempt to service or replace LEDs in the ENHANCERS yourself.

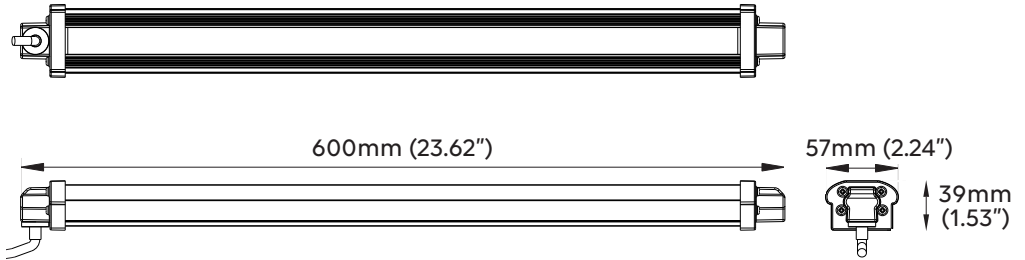
## **UV WARNING**

- Do not look directly into the UV light during operation.
- Wear protective eyewear to avoid exposure to UV light.
- Avoid direct eye and skin exposure to UV light.
- Keep out of reach of children.





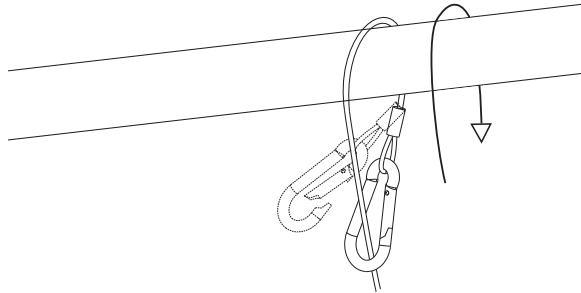
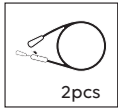
## DIMENSIONS (mm/inch)



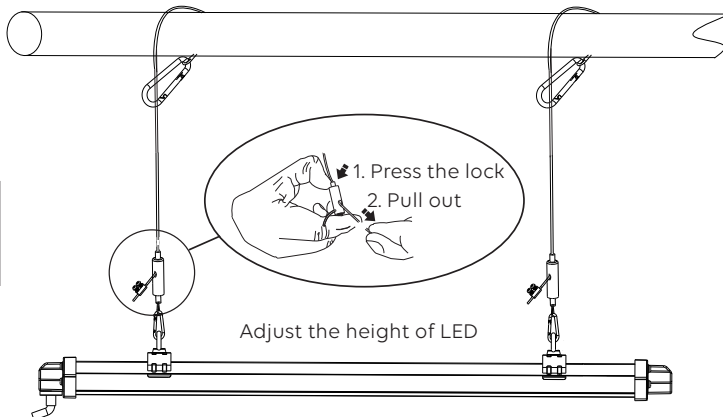
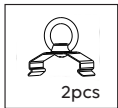
## INSTALLATION INSTRUCTIONS

### HANGING

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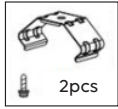


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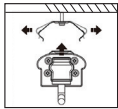
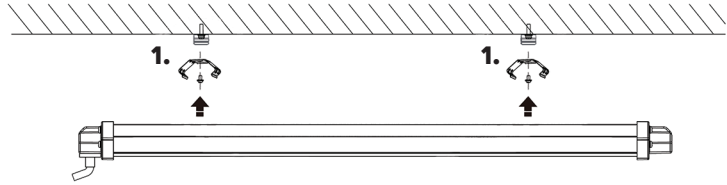




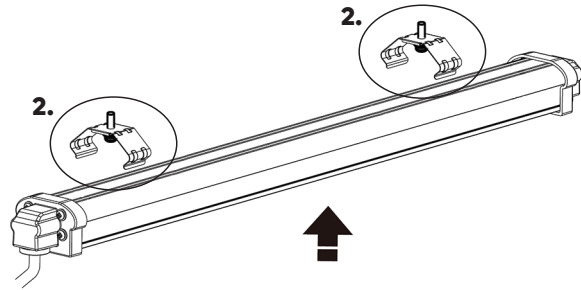
## CEILING INSTALLATION



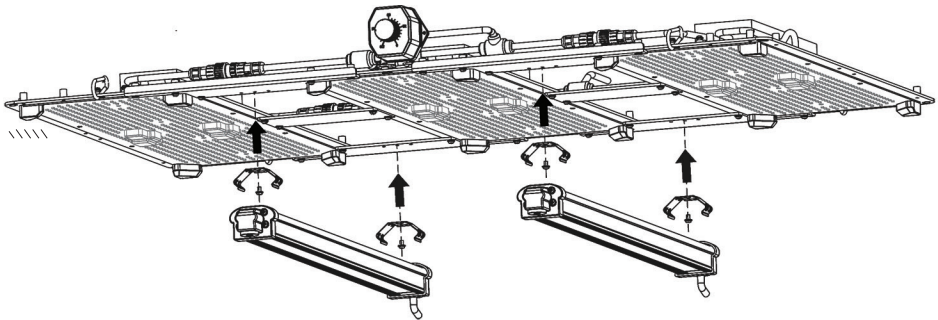
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## GROWBOARD INSTALLATION





[hortitek.com](http://hortitek.com)