

## HEFL<sup>®</sup>lighting unit

## Hybrid Electrode Fluorescent Lamp

HEFL is a fluorescent lamp for agricultural application modified backlight lamps used for large-screen LCD TVs.

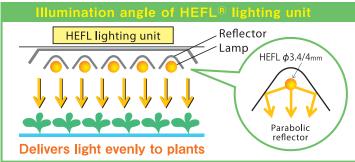
## Panel Type Thinner low-heat lighting unit enables proximity illumination and multi-shelf cultivation!



	8 lamps	12 lamps
Size	L900 × W700 × H57mm	
Lamp spec.	$\phi$ 3.4 $/$ 4.0 $ imes$ 860mm	
Working voltage	AC100~240V (50/60Hz)	
Power consumption	87W	115W
Standard equipment	AC code (2m in total) (12A/125V Flat 2P+earth terminal)	AC code (2m in total) (12A/125V Flat 2P + earth terminal) PWM dimmer (Approx. 100-40% adjustable)

- ◆ The lamp life is as long as 45,000 hours, which leads to reduction in the maintenance cost for the lighting unit.
- With a specially designed parabolic reflector to direct light vertically downward, the HEFL lighting unit distributes light evenly to plants.
- ◆ A wide variety of wavelengths of the lamp (17 colors) enables most suitable light quality control for cultivation according to crops.





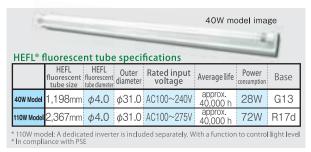


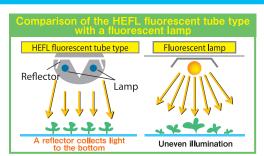






## Fluorescent tube with a built-in reflector to direct light vertically downward to plants





Spectral distribution

Tube current
=9.6.mA n=5

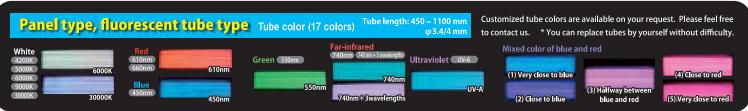
Repetral distribution

Tube current
=9.6.mA n=5

Reptacle distribution

Tube current
=

- ◆ G13 base allows use of existing apparatus and easy installation.
- ◆ High durability and long life thanks to filamentless structure.
- Changing lamps allows various light quality control features, same as panel type



The system was developed with an FY2012 governmental subsidy to promote and support new business activities (project to support collaboration between agricultural, commercial and industrial operations).