



# E.SHINE SYSTEMS

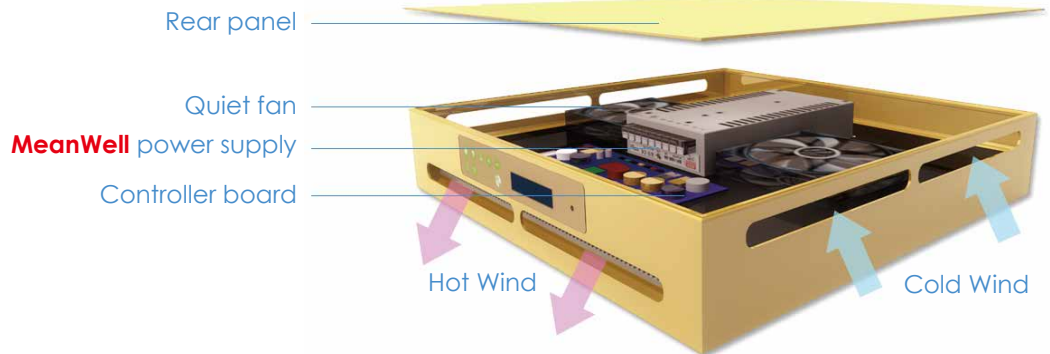
## 5G GrowSun Series LED Grow Light



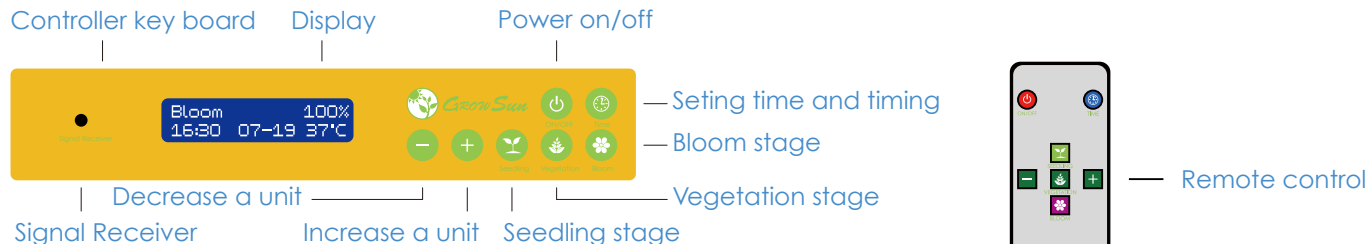
## GrowSun Features

- 1) 12-bands full spectra from 400-760nm & white for the best grow effect
- 2) Single 20watt LED with 12-bands multi-chips for the best mixture of different spectra, most effective & powerful for optimal performance
- 3) Surface optical lens make the average intensity of each spectrum per unit of area, mix the full spectra like sunshine(the part of 400-760nm)
- 4) 5G GrowSun Series spread a fixed coverage with average intensity of each band. Coverage is the same with different quantity LEDs on
- 5) Each 20watt LED can be simply replaced with our unique soldering-free design
- 6) Using MeanWell power supply with safe voltage DC36V output
- 7) Built-in fans, no vents on the light back, better water proof, against water drops
- 8) Whole anti-rust aluminum casing for better heat solution
- 9) Acrylic sheet with reflector surface, make sure all light in use, no waste
- 10) Work with GrowSun controller for three stages of seedling, vegetation and bloom
- 11) Easy to set the lighting time and lighting intensity percentage of each stage
- 12) Two operation ways of control panel and wireless remote controller
- 13) Lighting intensity percentage will be automatically decreased for over heat problem, power will be cut off if any accident occur
- 14) Golden color coating, aristocratic temperament but civilian price
- 15) Hang kits included
- 16) One year full warranty

# GrowSun Design



# GrowSun Functions



Display shows: grow stage, lighting intensity percentage, current time, lighting time and working temperature.



## Functions

### LEDs

- Single 20 watt LEDs with 12 multi-chips
- Full spectra with 12 bands from 400-760nm for best grow performance
- Different LEDs & spectra combination for seedling, vegetation and bloom

### Controller:

- Set current time
- Choose the corresponding stage of seedling, vegetation and bloom
- Set lighting time for seedling, vegetation and bloom
- Set the best lighting intensity & percentage from 0%-100% for your plants

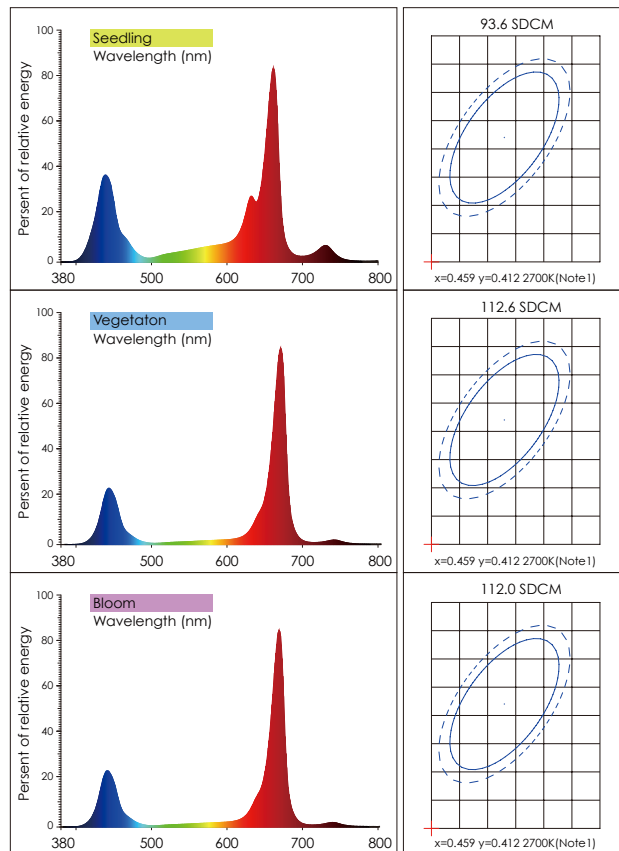
# GrowSun 320W Professional



Item NO.	GS-320P
Power	320W
Power supply	MeanWell SP-320-36
LED spectrum	12 bands of 400-760nm & white
Input	AC100-240V / 1.3-3.2A
Output	DC36V / 550mA
Standard lens	Sunface lens
Fan	2pcs 120x25 quiet fans
Net weight	9.5 KG / 21 pounds
Dimensions	426 x 426 x 85mm / 17" (L) x 17" (W) x 3.3" (H)
Packing	545 x 476 x 139mm / 21.5" (L) x 19" (W) x 5.5" (H)

## Light Source Test Report

Spectrophotometer Test Report



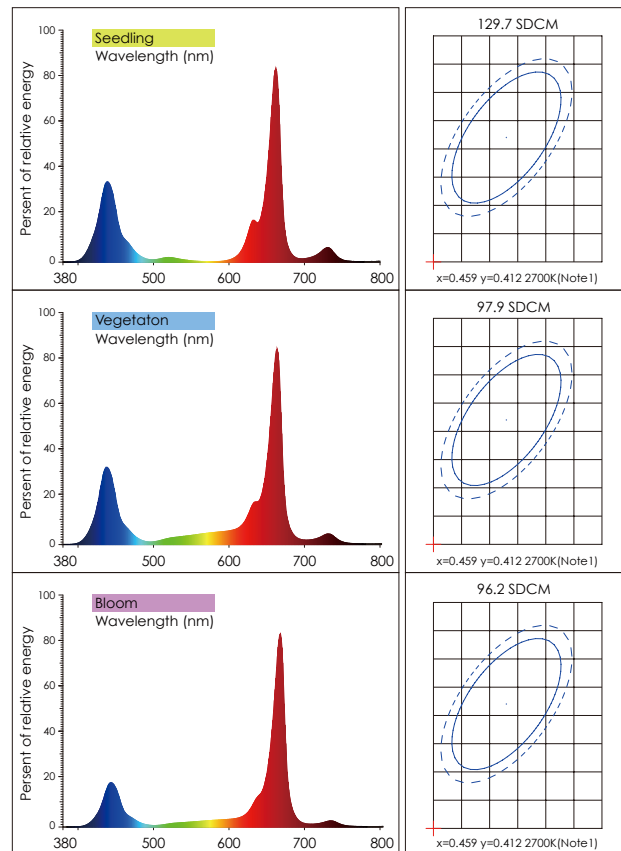
# GrowSun 160W Smart



Item NO.	GS-160S
Power	160W
Power supply	MeanWell SP-160-36
LED spectrum	12 bands of 400-760nm & white
Input	AC100-240V / 0.6-1.6A
Output	DC36V / 550mA
Standard lens	Sunface lens
Fan	2pcs 80x25 quiet fans
Net weight	5.5 KG / 12 pounds
Dimensions	306 x 306 x 85mm / 12"(L) x 12"(W) x 3.3"(H)
Packing	418 x 352 x 135mm / 16.5"(L) x 14"(W) x 5.3"(H)

## Light Source Test Report

Spectrophotometer Test Report



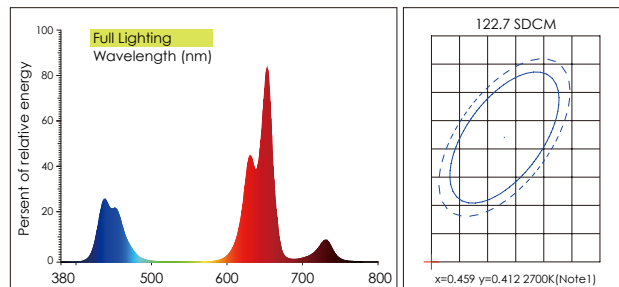


# GrowSun 12W Spot

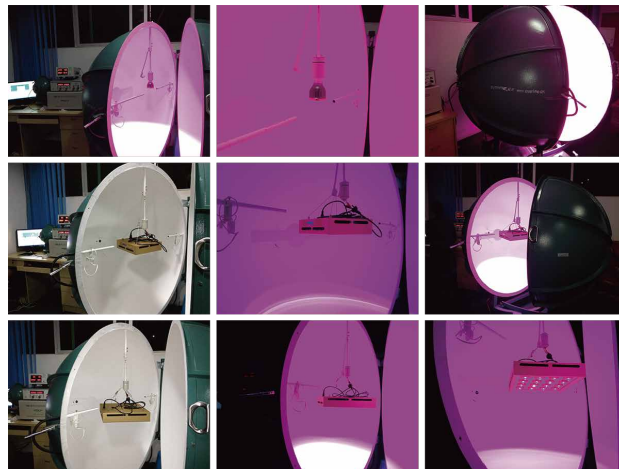


## Light Source Test Report

Spectrophotocolimeter Test Report

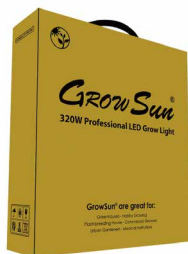
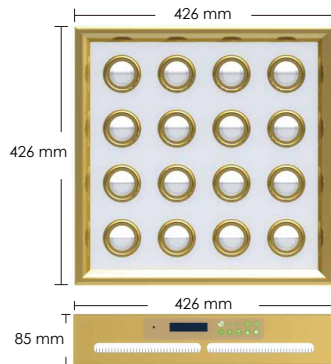


## Test Show



Item NO.	GS-12S
Power	12W
Power supply	Epton EPSC12-24V
LED spectrum	6 bands of 400-760nm
Input	AC100-240V / 0.6-1.6A
Output	DC24V / 550mA
Standard lens	Sunface lens
Fan	No Fan
Net weight	0.3 KG / 0.66 pounds
Dimensions	71 x 71 x 108mm / 2.8" (L) x 2.8" (W) x 4" (H)
Packing	75 x 75x 120mm / 2.9" (L) x 2.9" (W) x 5" (H)

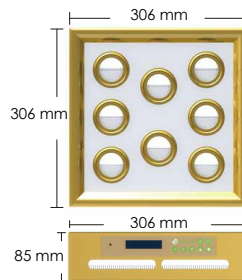
# Size and Packing



## What's in the box

320W Professional Light  
Remote controller  
Power cord  
Hanging kits  
Program Settings  
Warranty card

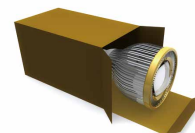
2pcs per carton



## What's in the box

160W Smart Light  
Remote controller  
Power cord  
Hanging kits  
Program Settings  
Warranty card

2pcs per carton



## What's in the box

12W Spot Light  
Warranty card

40pcs per carton



# Study

## Effect of different spectra on plants growth

**Red** - promote longitudinal growth, elongate stem and petiole, enlarge leaves, but decrease chlorophyll contents

**Blue** - promote horizontal growth, thicken stem and petiole, increase chlorophyll contents, improve the density of stomata of leaves

**Orange** - promote seeds germination and longitudinal growth

**Green** - promote the formation of oxygen during photosynthesis

**Violet** - thicken leaves, resist extension of stem and leaves, help to form anthocyanin

**Near infrared 720-760nm** - speed photosynthesis rates, stimulate cell elongation, important for bloom and seeds germination

**White** - supplement special spectra by combined with different spectra

## Effect of different spectra on plants component content

**Blue** - the content of soluble sugar & total free amino acids is highest

**RB** - the content of soluble protein is highest, photosynthetic rate of leaves is highest, sugar, carbon and nitrogen balanced distribution in leaves, crowns and roots

**RBG** - the content of total starch is highest

**Orange or Yellow** - the content of sucrose is highest, promote the formation of carbohydrate

## Effects of photoperiod on plants blossom

**Short-day plants** - plants bloom when the illumination time is less than a certain time, or plants will not bloom or delay bloom. Shortening illumination time will promote early flowering. These plants are: rice, corn, soybean, sorghum, Xanthium sibiricum, perilla, hemp, jute, strawberry, tobacco, chrysanthemum, Begonia etc.

**14 -16 hours/day for vegetation, 10 -12 hours/day for bloom, 8 -10 hours/day for fruit**

**Long-day plants** - plants bloom when the illumination time is more than a certain time, or plants will not bloom or delay bloom.

Prolonging illumination time will promote early flowering. These plants are: wheat, barley, rye, rape, spinach, radish, Chinese cabbage, cabbage, celery, beets, carrots, Rudbeckia, camellia, azalea, sweet-scented osmanthus, henbane etc.

**8 -12 hours/day for vegetation, 12 -16 hours/day for bloom & fruit**



**Morphology of cherry tomato seedlings under different spectra**



# GROWSUN

## E.SHINE SYSTEMS

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