

sanlight
driven by nature



Q-Series Usage Guide for Grow Tents

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Setup for common tent sizes

60 x 60cm
(2ft x 2ft)



80x80cm
(2.6ft x 2.6ft)



100x100cm
(3.2ft x 3.2ft)



120x120cm
(3,9ft x 3,9 ft)



SANlight Q4W



150W
Ø PPF: 626 $\mu\text{mol/s}$

SANlight Q6W



215W
Ø PPF: 553 $\mu\text{mol/s}$

2x SANlight Q4W



300W
Ø PPF: 490 $\mu\text{mol/s}$

replaces 400W HPS

2x SANlight Q6W



430W
Ø PPF: 527 $\mu\text{mol/s}$

replaces 600W HPS

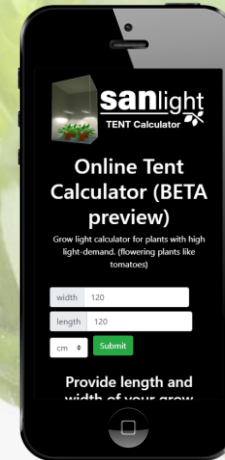
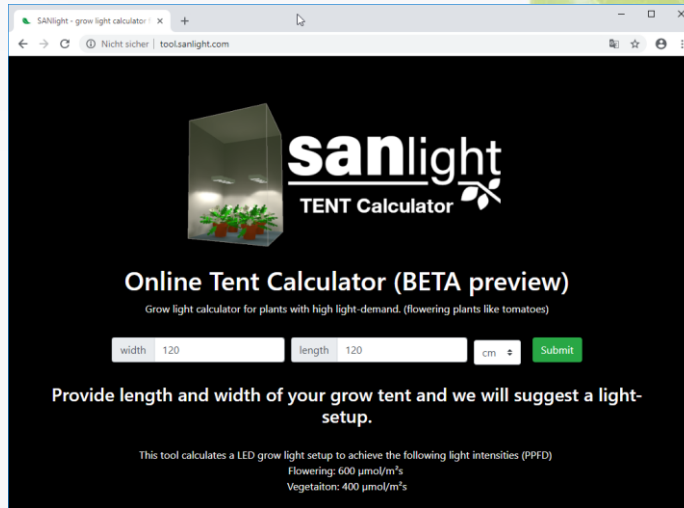
<http://tool.sanlight.com> - BETA preview

Online calculator for grow tents.

We developed an easy to use online calculator for grow tents.

Simply provide width and length of your grow tent and the tool will suggest suitable light setups.

Compatible with smartphones and tablets ✓



Embedding the online calculator

Its possible to link to the online calculator and provide your custom values length and width of your tent.

Sample for 100x100 cm tent:

<http://tool.sanlight.com/?l=100&w=100>

Replace the values of the parameter **"l" for length** and **"w" for width** to provide your custom measurements for length and width in cm.

Sample links

Size	link
60 x 60 cm	http://tool.sanlight.com/?l=60&w=60
80 x 80cm	http://tool.sanlight.com/?l=80&w=80
100 x 100cm	http://tool.sanlight.com/?l=100&w=100
120 x 120 cm	http://tool.sanlight.com/?l=120&w=120

```
<a  
href=http://tool.sanlight.com/  
?l=100&w=100 target="_blank">  
SANlight LED for 100 x 100cm  
</a>
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Metric overview

- ◆ **PAR** - Photosynthetic Active Radiation. The wavelength of the light which contributes to photosynthesis. 400 to 700nm (deep blue to deep red)
Unit: $\mu\text{mol}/\text{m}^2\text{s}$
- ◆ **PPF** - Total Amount of Photons (within the PAR range) which are emitted by a light source (independently from radiated direction)
Unit: $\mu\text{mol}/\text{s}$
- ◆ **PPFD** - Amount of Photons (within PAR range) which arrive at a specific point in a specific distance to the light source. It does not contain information about the spectrum
Unit: $\mu\text{mol}/\text{m}^2\text{s}$
- ◆ **DLI** - Amount of Photons (inside PAR), which arrive in a specific place, per day and per m^2
Unit: $\text{mol}/\text{m}^2\text{d}$

Required Intensities

◆ DLI-Target: 26 mol/m²d

26 mol/m²d is a well known standard for the cultivation of fruit / flower forming plants all over the world. For a SDP (short day plant) illumination periods of 18h (long day) and 12h (short day) are common. This value can be used as a reference value for a perfect setup.

In order to achieve the DLI target with the given illumination period, the following intensities are required.

◆ Vegetation: 400 μmol/m²s for 18h → DLI: 26 mol/m²d

◆ Flowering: 600 μmol/m²s for 12h → DLI: 26 mol/m²d

Its possible to use higher / lower intensities:

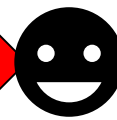
Lower intensities: the metabolism will be slower. The plants is growing slower and the expected yield is less.

Higher intensities: using higher light intensities can lead to higher yield but also more growing-experience is required.

Nutrients, watering, Co₂ must be altered.

18 h cycle / vegetation

12h cycle / flowering



Intensity: 400 $\mu\text{mol}/\text{m}^2\text{s}$
Illumination time: 18h / d

DLI: 26mol/d
target

Intensity: 600 $\mu\text{mol}/\text{m}^2\text{s}$
Illumination time: 12h / d



Distance: 50-60 cm



- Vegetative growth phase
- Young plants
- Seedlings & cuttings



Distance: 35-45 cm



Straight hanging

Hanging straight if you use it in an open room or when just one lamp is used.



Declined hanging

Hanging declined like shown in the picture if you are working in a tent. If more than 2 lamps are installed, hang the outer lamps declined.

This supports **diffuse lighting** inside your tent.




One light, all grow phases

◆ The Standard Spectrum, S1 is a broadband spectrum which contains all colours (blue, green, red and far-red)

◆ Therefore its suitable for all grow-phases

✓ Cuttings / seedlings 

✓ Vegetation 

✓ Flowering 

The spectrum remains constant during all phases. No need to change the spectrum.

General Information changing from HPS to LED

- ◆ Be aware of overwatering: Due to missing heat radiation, compared with HPS, less water is vaporizing and therefore less watering is required. You will need around 25% less nutrient solution.
- ◆ You may notice that the plant develops faster (depends on strain). In this case P/K boosting can be done earlier.
- ◆ As the spectrum has a big portion of red light, stigmas may look more brown as they are. That should not be your guide to determine the harvest date. We would suggest to have a look at the trichomes.

Ambient Temperature and Humidity (VPD)

- ◆ As the LEDs have less active radiant heat you can grow at higher ambient temperatures in comparison to HPS.
- ◆ Recommended ambient temperature 24-27 C°
- ◆ For the best results check the VPD (Vapour pressure deficit). (next slide)

VPD		Relative Humidity																				
Temp C°	F	80	77,5	75	72,5	70	67,5	65	62,5	60	57,5	55	52,5	50	47,5	45	42,5	40	37,5	35	32,5	30
16	60,8	0,34	0,38	0,43	0,47	0,51	0,55	0,60	0,64	0,68	0,72	0,77	0,81	0,85	0,90	0,94	0,98	1,02	1,07	1,11	1,15	1,19
17	62,6	0,36	0,41	0,45	0,50	0,55	0,59	0,64	0,68	0,73	0,77	0,82	0,86	0,91	0,95	1,00	1,05	1,09	1,14	1,18	1,23	1,27
18	64,4	0,39	0,44	0,48	0,53	0,58	0,63	0,68	0,73	0,77	0,82	0,87	0,92	0,97	1,02	1,07	1,11	1,16	1,21	1,26	1,31	1,36
19	66,2	0,41	0,46	0,52	0,57	0,62	0,67	0,72	0,77	0,83	0,88	0,93	0,98	1,03	1,08	1,13	1,19	1,24	1,29	1,34	1,39	1,44
20	68	0,44	0,49	0,55	0,60	0,66	0,71	0,77	0,82	0,88	0,93	0,99	1,04	1,10	1,15	1,21	1,26	1,32	1,37	1,43	1,48	1,54
21	69,8	0,47	0,53	0,58	0,64	0,70	0,76	0,82	0,88	0,94	0,99	1,05	1,11	1,17	1,23	1,29	1,34	1,40	1,46	1,52	1,58	1,64
22	71,6	0,50	0,56	0,62	0,68	0,75	0,81	0,87	0,93	0,99	1,06	1,12	1,18	1,24	1,31	1,37	1,43	1,49	1,55	1,62	1,68	1,74
23	73,4	0,53	0,59	0,66	0,73	0,79	0,86	0,93	0,99	1,06	1,12	1,19	1,26	1,32	1,39	1,45	1,52	1,59	1,65	1,72	1,78	1,85
24	75,2	0,56	0,63	0,70	0,77	0,84	0,91	0,98	1,05	1,12	1,19	1,26	1,33	1,40	1,47	1,54	1,62	1,69	1,76	1,83	1,90	1,97
25	77	0,60	0,67	0,75	0,82	0,89	0,97	1,04	1,12	1,19	1,27	1,34	1,42	1,49	1,57	1,64	1,72	1,79	1,86	1,94	2,01	2,09
26	78,8	0,63	0,71	0,79	0,87	0,95	1,03	1,11	1,19	1,27	1,35	1,43	1,50	1,58	1,66	1,74	1,82	1,90	1,98	2,06	2,14	2,22
27	80,6	0,67	0,76	0,84	0,92	1,01	1,09	1,18	1,26	1,34	1,43	1,51	1,60	1,68	1,76	1,85	1,93	2,02	2,10	2,18	2,27	2,35
28	82,4	0,71	0,80	0,89	0,98	1,07	1,16	1,25	1,34	1,43	1,51	1,60	1,69	1,78	1,87	1,96	2,05	2,14	2,23	2,32	2,41	2,50
29	84,2	0,76	0,85	0,94	1,04	1,13	1,23	1,32	1,42	1,51	1,61	1,70	1,80	1,89	1,98	2,08	2,17	2,27	2,36	2,46	2,55	2,65
30	86	0,80	0,90	1,00	1,10	1,20	1,30	1,40	1,50	1,60	1,70	1,80	1,90	2,00	2,10	2,20	2,30	2,40	2,50	2,60	2,70	2,80
31	87,8	0,85	0,95	1,06	1,17	1,27	1,38	1,48	1,59	1,70	1,80	1,91	2,01	2,12	2,23	2,33	2,44	2,55	2,65	2,76	2,86	2,97
32	89,6	0,90	1,01	1,12	1,24	1,35	1,46	1,57	1,68	1,80	1,91	2,02	2,13	2,25	2,36	2,47	2,58	2,69	2,81	2,92	3,03	3,14

0,4-0,8	low transpiration - early vegetation
0,8-1,2	healty transpiration - vegetation phase
1,2-1,6	high transpiration - flowering
<0,4 > 1,6	warning

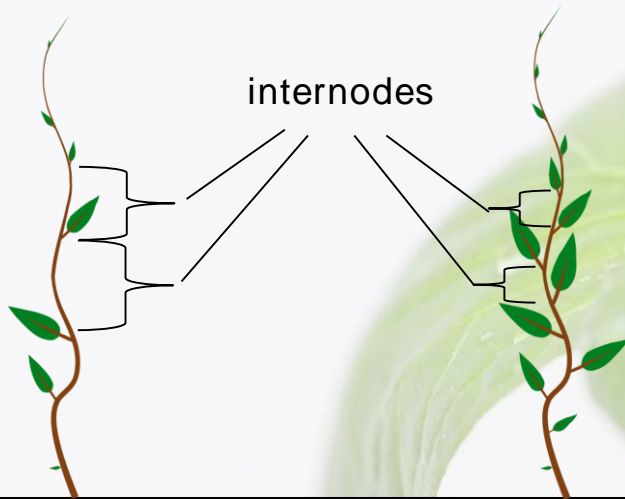
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Effect of different light intensities

Long internodes – Etiolation
Plant grows too big

Problem: light intensity is too low (or even no light)

Solution: Increase light intensity!
More lamps / lower distance to canopy



Burned leaves, extremely short internodes
Plant grows too short.
Damages: bleaching (picture below), strange morphology (weird looking plants...)

Light intensity is far too high.

Solution: Decrease intensity!
less lamps / increase distance to canopy



Bleaching
too high light intensity

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- ✓ Development ...
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- ✓ Research ...
- ✓ Company internal light measurement ...

... in Austria

