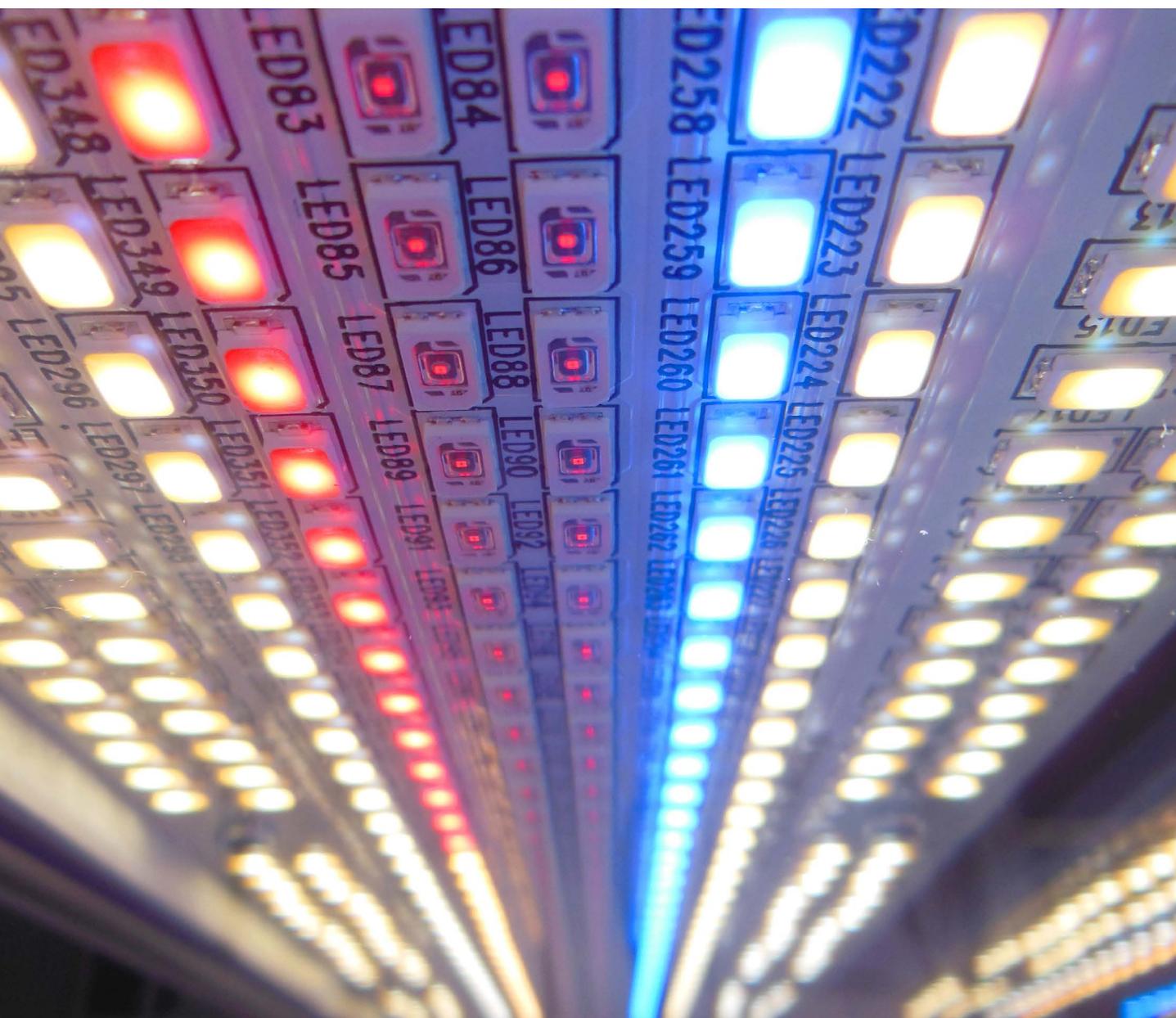


Valoya



LightDNA®

NATURAL OUTDOOR LIGHT

Outdoor Light Conditions

LightDNA is a new product line of Valoya's professional LED grow lights. The purpose of the LightDNA products and solutions, is the delivery of natural outdoor light conditions. Outdoor light is by default changing all the time, with regards to light spectrum, intensity and photoperiod.

All these dynamic features are accurately captured with LightDNA.

2 Channel Light



For replication of the key features of outdoor light in crop science applications and for advanced plant production applications.

The Valoya LightDNA 2 channel light consists of the main light spectrum (NS1) and a complementary tuning spectrum (far-red). The powerful main light spectrum is a close approximation of a clear sky at noon sun spectrum and it covers a range of 380 to 830nm (exceeding PAR 400-700nm). The NS1 is also a proven plant growth spectrum, with white appearance to humans and it has become the spectrum of choice for the leading research institutes and universities globally.

The complementary spectrum is far red (730 nm), which not only enables replication of dawn and dusk with the main spectrum, but also gives control of the red/far red ratios which is considered to effect a lot of plant growth and plant development processes.

The control of the 2 channel light is handled by a growth chamber or greenhouse control system using an industry standard 1-10 Volt control signal for each channel.

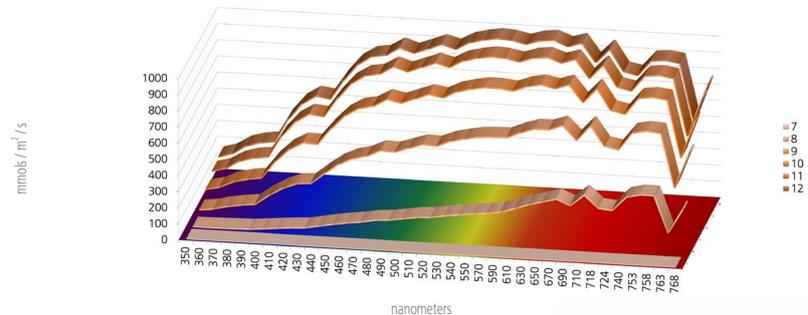
- » Replication of clear sky light including dawn and dusk
- » Adjustable red/far red ratio
- » Suitable for growth chambers and greenhouses





The dynamic nature of outdoor light

On a clear day, this is how sunlight looks from 7 o'clock until noon. The presence of clouds adds to the complexity of its spectra. With LightDNA you can successfully replicate all these parameters in a controlled environment.



8 Channel Light /
Queen Mary University, London

8 Channel Light



For demanding crop science and ecological research applications, where very accurate, dynamic, outdoor light conditions are a must.

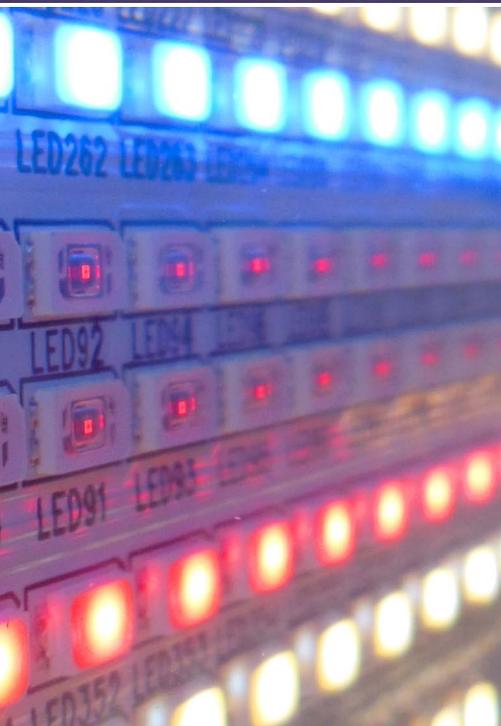
The Valoya LightDNA 8 channel light is a lighting system, which enables input and replication of generated theoretical and recorded real outdoor light conditions, with regards to intensity, light spectra and photoperiods. LightDNA system consists of Valoya's latest technology: 8-Channel luminaire - high power LED fixture with 8 channels of light (some of which patented by Valoya), an internet connected microcomputer and both local and cloud-based software for the processing of the light data.

The configuration of LEDs is optimized to meet outdoor light conditions with 90% or higher accuracy (380-780 nm range). This includes high intensity clear sky noon and clear and cloudy dusk and dawn.

The easy-to-use software is operated over a web-interface and it allows for generation of light programs as well as uploading and storing of recorded real light conditions for replication in the system.

A library of spectral conditions from different locations in the world will be added to the system later (additional fees may apply).

- » Replicate outdoor light from any part of the world
- » Adjust the light with easy-to-use software, online
- » Up to 2000 $\mu\text{mol}/\text{m}^2/\text{s}$



Product Specifications



| | | Dynamic 2-Channel Light | | Dynamic 8-Channel Light |
|--------------------------------|-----------|---|---|--|
| | | BX120 | BX180 | LightDNA 8-channel |
| Match (clear sky at noon) | 400-700nm | ~87 % | | ~95 % |
| | 380-750nm | ~86 % | | ~94 % |
| Power consumption (typical) | | 140 W, of which 120 W NS1-channel, 20 W Far red-channel | 210 W, of which 184 W NS1-channel, 26 W Far red-channel | 320 W total (30 - 70 W channel dependent) |
| Power input | | 100-240, 277 VAC | | 100 - 240, 277 VAC |
| Weight (fixture) | | 2,6 kg (3.7 lb) | 3,9 kg (8.6 lb) | 5,8 kg (12.8 lb) |
| Weight, power unit | | 2 x 1,5 kg (3.3 lb), excluding. junction box | | 1,9 kg (4.2 lb) |
| Dimension (fixture), L x W x H | | 1176 x 74 x 58 mm | 1722 x 74 x 58 mm | 340 x 180 x 175 mm |
| Dimensions (fixture), inches | | 46.3" x 2.9" x 2.3" | 68" x 2.9" x 2.3" | 13.4" x 7.0" x 6.9" |
| Control signal | | 1-10 Volt, PWM | | 8 channel dimmable, controlled with microPC |
| Micro PC | | N/A | | BeagleBone Industrial |
| Spectrum | | 2 channel dynamic, clear sky and dawn/dusk | | Dynamic outdoor light |
| Spectrum type, wideband | | NS1 (~89 % of total $\mu\text{mol/s}$ output at max.) | | Clear sky white, dusk white, wide red, dawn white, cloudy day blue |
| Spectrum type, narrowband | | Far Red, 730 nm (~11 % of total $\mu\text{mol/s}$ output at max.) | | Far Red (730 nm) |
| Light efficacy (380-800nm) | | NS1: 1,75 $\mu\text{mol/W}$ Far Red: 1,6 $\mu\text{mol/W}$ | | 1,3 $\mu\text{mol/W}$ (all channels on at full thermal load), varies among spectra |
| Ambient operating temperature | | 0 - 40 °C (32 - 104 °F) | | 0 - 30 °C (32 - 86 °F) |
| Light intensity decay | | Max 10 % of original output at 35 000 hours | | Max 10 % of original output at 35 000 hours |
| Certifications | | CE, cSGSUS | | CE, cSGSUS pending |

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