CIELUX PROFESSIONAL SPECIFICATION SHEET

W2KX

Full-spectrum LED (Light Emitting Diode) Product

1.01 GENERAL

A. The fixture shall be a Cielux W2KX manufactured by DiCon Fiberoptics Inc.

1. Cielux, a DiCon Fiberoptics Inc. brand, shall provide all LED fixtures to ensure color consistency.
2. The fixture shall be a high-intensity LED illuminator utilizing a Dense Matrix 3D LED Array System comprised of at least 6 different LED chip colors

B. Each LED fixture shall be tested and optimized for photometric performance.

1.02 PHYSICAL

A. The dimensions of the fixture shall be 9.6" L x 12.1" W x 9.4" H (24.3 x 30.8 x 23.8cm) and weigh approximately 8.6 lbs (3.9 kg). The following shall be provided:

a. Cielux W2KX fixture, consisting of

1. W2KX Head Unit
2. 720W (AMZ) / 800W (TLB), 100–240 V or 100-277 V, Clamp Mount PSU

B. The housing shall have a black or white finish.

C. The housing material shall be PC (polycarbonate) + ABS (acrylonitrile-butadiene-styrene).

D. Mounting Type shall have a Clamp or PVT Adapter selection.

E. Cooling and electronic control systems shall be fully integrated within the fixture housing.

1.03 ENVIRONMENTAL AND AGENCY COMPLIANCE

A. Compliance shall be verified through ETL testing and certification; the fixture shall bear both ETLus and cETL markings.

B. The fixture shall comply with FCC 47 CFR Part 15 Subpart B requirements, as verified by ANSI C63.4 testing.

C. The fixture shall carry the CE mark and comply with RoHS (Restriction of Hazardous Substances) and TAA (Trade Agreements Act) regulations.

D. The fixture shall be rated for IP-25 and must sustain operation at full intensity while being actively sprayed with light water.

1.04 THERMAL

A. Product heat management shall be achieved through forced-air cooling.

B. The cooling fans shall be rated for a minimum operational lifespan of 50,000 hours.

C. The fixture shall utilize advanced thermal management systems to maintain LED life to an average of 70% LED intensity after 50,000 hours of cumulative use.

D. The fixture shall operate in an ambient temperature range of 32°F (0°C) minimum to 104°F (40°C) maximum.

1.05 ELECTRICAL

A. The fixture shall have an auto-ranging 100 V to 240 V or 100 V to 277 V, 50/60 Hz power supply unit.

B. The fixture shall have a maximum draw of 720W (AMZ) / 800W (TLB).

C. AC input Voltage shall be 100-277V, 60Hz

D. The fixture requires power from a non-dimming source.

E. Products shall have dynamic thermal monitoring at multiple locations in the LED array, control board, and other electronics to prevent thermal shift of color or intensity.

F. Product power input shall have current-limiting fuse protection.

G. The power supply shall have power factor correction.

1.06 OPTICAL DATA

A. The fixture shall contain a patented Dense Matrix LED Light Source manufactured by DiCon Fiberoptics, Inc.

1. The fixture shall have a 105-degree native beam angle

B. DiCon Fiberoptics, Inc. shall utilize an advanced production LED binning process to maintain color consistency.

C. All LED fixtures (100% of each lot) shall undergo a minimum three-hour burn-in test during manufacturing.

D. The LED system shall comply with all relevant patents.

1.07 SPECTRUM

A. Photosynthetically Active Radiation (PAR)

a. The fixture shall deliver full-spectrum light with spectral peaks aligned with chlorophyll A and B absorption maxima (425 nm, 455 nm, 640 nm, and 660 nm), critical for efficient photosynthesis.

b. The fixture will output a spectrum low in green light (no more than 32% of the total PPFD output shall fall in the 500-600nm range when set at 4000K, and no more than 36% at 6500K), as plants utilize green light less efficiently.

B. AMZ (Amazon Sun)

a. Fixture shall have a tunable CCT between 4000K–6500K.

b. Adjusting the CCT shall maintain the spectral peaks for chlorophyll A and B.

C. TLB (Tuna Light Blue)

a. Fixture shall have a tunable CCT between 8000K and 14000K.

b. Adjusting the CCT shall maintain the spectral peaks for chlorophyll A and C.

c. Fixture shall have spectral peaks at 425 nm and 455 nm to support zooxanthellae photosynthesis and coral fluorescence.

d. Fixture shall have a broadband blue spectrum with no spectral gaps between 390nm and 500nm.

1.08 INTENSITY MEASUREMENTS

A. The fixture shall emit a luminous flux of approximately 26,822 lumens in Amazon Sun and 14,166 lumens in Tuna Light Blue.

B. High PPFD Output:

a. At 4000K distance 3’ (0.9m):

i. Measured illuminance: 1312 fc, 14123 lux

ii. Measured PPFD: 355 µmol/m² · s

b. At 6500K distance 3’ (0.9m):

i. Measured illuminance: 1334 fc, 14357 lux

ii. Measured PPFD: 337 µmol/m² · s

c. At 8,000K distance 3’ (0.9m):

i. Measured illuminance: 1132 fc, 12186 lux

ii. Measured PPFD: 318 µmol/m² · s

d. At 14,000K distance 3’ (0.9m):

i. Measured illuminance: 766 fc, 8246 lux

ii. Measured PPFD: 393 µmol/m² · s

C. The fixture shall produce a uniform light distribution without hotspotting. The center intensity shall be no more than two times (2x) the intensity measured at 30 degrees off-center.

D. Amazon Sun

a. Color output @4000k distance 3’ (0.9m) at 1312fc/14123lux, distance 5’ (1.5m) at 583fc/6277lux, distance 10’ (3.0m) at 170fc/1832lux.

b. Color output @6500k distance 3’ (0.9m) at 1334fc/14357lux, distance 5’ (1.5m) at 593fc/6381lux, distance 10’ (3.0m) at 173fc/1862lux.

c. At 3 feet (0.9 meters), the beam spreads to 4.7 feet (1.4 meters) in diameter.

d. At 5 feet (1.5 meters), the beam spreads to 7.8 feet (2.4 meters) in diameter.

e. At 10 feet (3.0 meters), the beam spreads to 15.6 feet (4.7 meters) in diameter.

E. Tuna Light Blue

a. Color output @8,000k distance 3’ (0.9m) at 1132fc/12186lux, distance 5’ (1.5m) at 530fc/5705lux, distance 10’ (3.0m) at 135fc/1455lux.

b. Color output @14,000k distance 3’ (0.9m) at 766fc/8246lux, distance 5’ (1.5m) at 358fc/3850lux, distance 10’ (3.0m) at 98fc/1058lux.

c. At 3 feet (0.9 meters), the beam spreads to 5.1 feet (1.5 meters) in diameter.

d. At 5 feet (1.5 meters), the beam spreads to 7.6 feet (2.3 meters) in diameter.

e. At 10 feet (3.0 meters), the beam spreads to 15.2 feet (4.6 meters) in diameter.

1.09 DIMMING AND CONTROL

A. The fixture shall provide LED dimming from 0% to 100% using a 0–255 scale, where values between 0 and 255 control the light's brightness.

B. The fixture shall use analog dimming and be flicker-free at all refresh rates/measurements when run above 6% intensity.

C. The fixture shall be equipped with a 2-knob user interface and can be DMX controlled when used with a DMX-compatible driver labeled “PSX” in the ordering guides and part numbers.

D. Fixtures manufactured after May 2026 have a toggleable "RAMP" setting for adjusting intensity slowly over a period of time, in order to avoid harming sensitive animals. When enabled, the ramp setting shall make all changes over a period of 1% intensity per second, without the need for an external controller. Please indicate if this is required when ordering.

E. DMX Footprint

a. Amazon Sun

i. Channel 1: Intensity (0–255)

ii. Channel 2: CCT (2,000K–10,000K mapped across 0–255)

b. Tuna Light Blue

i. Channel 1: Intensity (0–255)

ii. Channel 2: CCT (8,000K–14,000K mapped across 0–255)

iii. Channel 3: Violet Control

iv. Channel 4: Red Control

v. Channel 5: Green Control

1.10 REQUIRED FEATURE SET

A. The fixture shall offer user-selectable Color Temperature settings.

B. The fixture shall offer user-selectable dimming settings.

C. The fixture shall contain a direct power connection.

D. The fixture shall contain two manual knobs on the back of the fixture to control all fixture parameters.

E. All provided fixtures will contain the above feature set.

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