

# CIELUX PROFESSIONAL SPECIFICATION SHEET

## W360N

Full-spectrum LED (Light Emitting Diode) Product

### 1.01 GENERAL

- A. The fixture shall be a Cielux W360N 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 Ø 5.2" W x 6.5" H (12.8 x 16.5 cm) and weigh approximately 1.5 lbs (0.7 kg). The following shall be provided:
  - a. Cielux W360N fixture, consisting of
    - 1. W360N Head Unit
    - 2. 80W, 24V, Track 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 Track, Clamp, or Monopoint Adapter selection.
- E. Cooling and electronic control systems shall be fully integrated within the fixture housing.

### 1.03 TRACK SEGMENTS

- A. The fixture shall be installed on a surface-mounted track - One Track
  - 1. Track input voltage shall be 120V.
  - 2. The track shall feature 2 circuits, supporting a maximum of 20 Amps per circuit and 40 Amps per track.
  - 3. The track shall have standard length options of 4' and 8', and can be cut and connected by track accessories.
  - 4. The track shall have mounting points size 0.47" x 0.16" (12mm x 4mm), Slot Per 1.64' (500mm).
- B. With Data (-TOX): 7 conductors (2 Data, 2 Live, 2 Neutral, 1 Ground)
  - 1. 4' Track with data - Black (9000-UL4/B-ST2-120) / White (9000-UL4/W-ST2-120)
  - 2. 8' Track with data - Black (9000-UL8/B-ST2-120) / White (9000-UL8/W-ST2-120)

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- C. The track shall have a black or white finish
- D. The track material shall be Aluminum / PVC (polyvinyl chloride) / PC (polycarbonate) / copper conductors.
- E. The maximum track load shall be 110 lbs / 50 kg per 1.5' of track.

**1.04 ENVIRONMENTAL AND AGENCY COMPLIANCE**

- A. The fixture shall comply with UL 1574 (Track Lighting Systems) and CSA C22.2 standards.
- B. Compliance shall be verified through ETL testing and certification; the fixture shall bear both ETLus and cETL markings.
- C. The fixture shall comply with FCC 47 CFR Part 15 Subpart B requirements, as verified by ANSI C63.4 testing.
- D. The fixture shall carry the CE mark and comply with RoHS (Restriction of Hazardous Substances) and TAA (Trade Agreements Act) regulations.
- E. The fixture shall be rated for IP-25 and must sustain operation at full intensity while being actively sprayed with light water.

**1.05 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.

**1.06 ELECTRICAL**

- A. The fixture shall have an auto-ranging 100 V to 240 V 50/60 Hz power supply unit.
- B. The fixture shall have a maximum draw of 80W.
- C. DC input Voltage shall be 14-30V.
- D. The fixture requires power from a non-dimming source.
- E. The fixture 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. Power input shall have current-limiting fuse protection.
- G. The power supply shall have power factor correction.

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#### 1.07 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 45-degree native beam angle
- B. DiCon Fiberoptics, Inc. shall utilize an advanced fixtureion 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.

#### 1.08 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. TB (Tuna Blue)
  - a. Fixture shall have a tunable CCT between 10000K and 20000K.
  - 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.
- D. UVBA
  - a. Fixture shall have an additional 390–400 nm UVA range, which enhances coral and invertebrate pigmentation and overall health.

#### 1.09 INTENSITY MEASUREMENTS

- A. The fixture shall emit a luminous flux of approximately 3,168 lumens in Amazon Sun and 1,332 lumens in Tuna Blue.
- B. High PPFD Output:

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- a. At 4000K, with a distance of 3' (0.9m):
  - i. Measured illuminance: 899 fc, 9668 lux
  - ii. Measured PPFD: 252  $\mu\text{mol}/\text{m}^2 \cdot \text{s}$
- b. At 6500K, with a distance of 3' (0.9m):
  - i. Measured illuminance: 910 fc, 9787 lux
  - ii. Measured PPFD: 226  $\mu\text{mol}/\text{m}^2 \cdot \text{s}$
- c. At 10,000K, with a distance of 3' (0.9m):
  - i. Measured illuminance: 447 fc, 4802 lux
  - ii. Measured PPFD: 138  $\mu\text{mol}/\text{m}^2 \cdot \text{s}$
- d. At 20,000K, with a distance of 3' (0.9m):
  - i. Measured illuminance: 254 fc, 2733 lux
  - ii. Measured PPFD: 269  $\mu\text{mol}/\text{m}^2 \cdot \text{s}$
- 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 899fc/9668lux, distance 5' (1.5m) at 453fc/4870lux, distance 10' (3.0m) at 78fc/835lux.
  - b. Color output @6500k distance 3' (0.9m) at 910fc/9787lux, distance 5' (1.5m) at 458fc/4930lux, distance 10' (3.0m) at 79fc/845lux.
  - c. At 3 feet (0.9 meters), the beam spreads to 2.2 feet (0.7 meters) in diameter.
  - d. At 5 feet (1.5 meters), the beam spreads to 3.7 feet (1.1 meters) in diameter.
  - e. At 10 feet (3.0 meters), the beam spreads to 7.5 feet (2.3 meters) in diameter.
- E. Tuna Blue
  - a. Color output @10,000k distance 3' (0.9m) at 447fc/4802lux, distance 5' (1.5m) at 161fc/1729lux, distance 10' (3.0m) at 41fc/438lux.
  - b. Color output @20,000k distance 3' (0.9m) at 254fc/2733lux, distance 5' (1.5m) at 92fc/984lux, distance 10' (3.0m) at 23fc/245lux.
  - c. At 3 feet (0.9 meters), the beam spreads to 2.2 feet (0.7 meters) in diameter.

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- d. At 5 feet (1.5 meters), the beam spreads to 3.7 feet (1.1 meters) in diameter.
- e. At 10 feet (3.0 meters), the beam spreads to 7.5 feet (2.3 meters) in diameter.

**1.10**    **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 Blue
    - i. Channel 1: Intensity (0–255)
    - ii. Channel 2: CCT (10,000K–20,000K mapped across 0–255)
    - iii. Channel 3: Violet Control
    - iv. Channel 4: Red Control
    - v. Channel 5: Green Control

**1.11**    **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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