# Color mixing (Light Emitting Diode) Linear-style product

# **GENERAL**

- A. The product shall be an Ovation B-565FC as manufactured by Chauvet & Sons, LLC or approved equal.
  - 1. The product shall be a color-mixing high-intensity LED illuminator utilizing red, green, blue, amber, and lime (RGBAL) LEDs. and have DMX control of intensity and color.
  - The products shall conform to CSA C22.2 No. 166 and UL 1573 stage and studio use as well as UL 8750 LED standards, tested via MET to conform to the aforementioned UL specifications, product shall hold MET and CE markings.
  - 3. The product shall comply with the USITT DMX-512A standard.
  - 4. The product shall comply with the current PLSA ANSI E1.20-2010 remote device management (RDM) standard.
  - 5. All LED products shall be provided by a single manufacturer to ensure color consistency.

### **PHYSICAL**

- A. The product shall be constructed of rugged, die cast and/or extruded aluminum housing, free of defects or imperfections.
- B. The following shall be provided:
  - 1. Two rugged aluminum trunnions that can be used as floor mounting stands and accommodate C-clamps for hanging.
  - 2. Product shall have a trunnion lock on each side of the product with ratcheting handles.
  - 3. Product shall contain integral mounting points that allow clamps to be bolted directly to the product.
  - 4. Product shall contain two safety mounting points as an integral part of the casting.
- C. The housing shall have a rugged black powder coat finish.
- D. Power supply, cooling and electronics shall be integral to each product.
- E. Product housing shall provide an easy-access slot for secondary lenses or a wall washing filter.
- F. Each LED optic shall be spaced for optimal photometric performance.
  - 1. The products shall end to end placement while maintaining optical spacing to prevent scalloping between products.

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- G. The product shall ship with:
  - 1. Two rugged aluminum trunnions as standard
  - 2. Wall washing filter
  - 3. 5' cable with Neutrik powerCON™ to Edison connector as standard

#### ENVIRONMENTAL AND AGENCY COMPLIANCE

- A. The product shall conform to UL 1573, CSA C22.2 No. 166, and UL 8750 LED standards, tested via MET to conform to the aforementioned UL specifications, product shall hold MET and CE markings.
- B. The product shall be rated for IP-20 dry location use.

#### <u>THERMAL</u>

- A. Product heat management shall be achieved though convection cooling.
- B. The product shall utilize advanced thermal management systems to maintain LED life to an average of 70% intensity after 50,000 hours of use.
  - 1. Thermal management shall include temperature sensors within the housing.
- C. The product shall operate in an ambient temperature range of -20°C (-4°F) minimum, to 45° C (113°F) maximum, ambient temperature.

### **ELECTRICAL**

- A. The product shall be equipped with an auto ranging 100V to 240V 50/60Hz internal power supply.
- B. The product shall support power in and thru operation.
  - 1. Power in shall be via Neutrik powerCON<sup>™</sup> input connector.
  - 2. Power thru shall be via Neutrik powerCON<sup>™</sup> output connector.
  - 3. Product power wiring and accessory power cables shall be rated to support linking of multiple products up to the capacity of a 15A breaker.
- C. The product requires power from a non-dim source.
- D. Products shall have thermal output compensation to prevent thermal shift of color or intensity.
- E. Product power input shall have current limiting fuse protection.
- F. Power supply shall have power factor correction.

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# LED EMITTERS

- A. The product shall contain a red, green, blue, amber and lime LED color system to provide color characteristics as described in the Color section below.
- B. All LEDs used in the product shall be high brightness and proven quality from established and reputable LED manufacturers.
  - 1. Product shall utilize Luxeon® Rebel<sup>™</sup> ES Color and XP-E2 LED emitters.
- C. Manufacturer of LED emitters shall utilize an advanced production LED binning process to maintain color consistency.
- D. LED emitters should be rated for nominal 50,000-hour LED life to 70% intensity.
- E. All LED products (100% of each lot) shall undergo a minimum three-hour burn-in test during manufacturing.
- F. LED system shall comply with all relevant patents.

# <u>COLOR</u>

- A. The product shall utilize a minimum of 56 LED emitters.
  - 1. These emitters shall be composed of 12 red, 12 green, 12 blue, 8 amber and 12 lime LED emitters (RGBAL).

### DIMMING

- A. The LED system shall use 16-bit nonlinear scaling techniques for high-resolution dimming.
- B. The product shall have a selectable dimming curve to simulate incandescent dimming curves.
- C. Dimming curve shall be optimized for smooth dimming over longer timed fades.
- D. The LED system shall be digitally driven using high-speed pulse width modulation (PWM).
- E. LED control shall be compatible with broadcast equipment in the following ways:
  - 1. PWM control of LED levels shall be imperceptible to video cameras and related equipment.
  - 2. PWM shall be capable of being set on the control via on board controls or via RDM to 600hz, 1,200hz, 2,000hz, 4,000hz, 6,000hz, or 25,000hz.

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# CONTROL AND USER INTERFACE

- A. The product shall be USITT DMX 512A-compatible via in and thru RJ 45 (CAT 5) connectors, 5-pin XLR connectors and 3-pin XLR connectors.
- B. The product shall offer control via Art-Net<sup>™</sup>, DMX, RDM or sACN.
- C. The product shall be compatible with the ANSI RDM E1.20 standard.
  - 1. All product functions shall be accessible via RDM protocol for modification from suitably equipped control console or RDM controller.
  - 2. Temperature sensor within the luminaire shall be viewable in real time via RDM and on the control panel of the product.
  - 3. Products not offering RDM compatibility, feature set access or temperature monitoring via RDM shall not be allowed.
- D. The product shall be capable of individually controlling 10 equally spaced sections
- E. The product shall be equipped with an OLED display with 5 lines of text.
- F. The product shall be equipped with a four-button user-interface.
- G. The product shall offer RGB, RGBA, RGBAL, direct and single channel control
- H. A variable-rate strobe channel shall be provided.
- I. The product shall offer stand-alone functionality eliminating the need for a console.
  - 1. Product shall ship with 31 preset colors accessible as a stand-alone feature.
  - 2. Product shall ship with 5 auto sequences with speed control accessible as a stand-alone feature.
  - 3. Product can be linked together with standard DMX cables and controlled from designated master product.
    - a. Up to 32 products may be linked.
  - 4. Products without stand-alone operation features described above shall not be acceptable.

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