



Orbiter

Versatile point like LED Light

L I G H T I N G - T E N D E R S P E C I F I C A T I O N

V1.1

Revision history

<i>Date</i>	<i>Revision</i>	<i>Changes</i>	<i>Revisor</i>
<i>2021-05-31</i>	<i>V1.0</i>	<i>First release</i>	<i>AR</i>
<i>2021-07-14</i>	<i>V1.1</i>	<i>Technical corrections</i>	<i>AR</i>

A. General

1. The luminaire shall be RGBACL LED directional light luminaire with an electronically controlled LED light source especially with the ability to change the optical and mechanical accessories as needed.
2. The luminaire shall be capable of providing fully tunable white light from 2,000 to 20,000 K CCT and allow precise manipulation of intensity, green-magenta point (full minusgreen and full plusgreen), hue and saturation, and digital gel color selection.
3. The precise continuous manipulation of intensity from 0% to 100% is mandatory.
4. All functions shall be controllable through USITT DMX 512A and fully RDM compatible and equipped with a feedback channel for reporting.
5. An on-board control panel shall be available to control intensity, color temperature, green-magenta point, hue and saturation, and gel selection. The control panel can be used directly at the fixture or via a connecting cable remote from the fixture.
6. The luminaire shall be available as a manual and hanging pole operated version.
7. Attaching of yoke and optical accessories shall work without tools.

B. Physical

1. The luminaire shall be constructed of die casted aluminum, profiles and molded engineering grade fiber-reinforced thermoplastics.
2. The body of the fixture shall be available in blue/silver or matt black finish.
3. Technical requirements for the hard-light luminaire:
 - a. The hard light luminaire shall have the dimensions not exceeding 309 mm (12.2") in length, 330 mm (13") in height without yoke, spigot and accessories, 451 mm (17.8") with manual yoke and spigot, 411 mm (16.2") with pole operated yoke and spigot, and 410 mm (16.1") in width.
 - b. Light aperture shall have a dimension of 42 mm (1.66") (polygon shaped) with a sturdy accessory interface incl. supply voltage and bi-directional digital communication between fixture and accessory.
 - c. The manual stirrup shall be made of aluminum profile, the pole operated stirrup shall be made of steel, both with a 28 mm (1 1/8") spigot attached.
 - d. High strength friction tilt lock shall guarantee secure locking to eliminate any movement or slippage to ensure the luminaire will stay in position.
 - e. Top handle for carrying of lamphead and plastic foot for allowing the fixture to stand on a flat surface.
 - f. A tilt range of +/- 90° is required.
 - g. The beam angle shall range from 15° to 360° with the change of optical accessory.
 - h. Weight for the luminaire only shall be 11.7 kg (25.8 lb.), manual version shall be 14.2 kg (31.1 lb.) and for the pole operated version 14.9 kg (32.9 lb.).
 - i. The safety loop attachment shall absorb forces acting on the fixture in the event of a fall and protect the fixture from damage.
4. The luminaire shall be equipped with cooling fans.
5. The fan noise emission shall not exceed 20 dBA (1m) at any time.
6. The LED emitters used in the fixture should be rated for nominal 50,000-hour LED life to 70% intensity with an estimated color shift over lifetime less than 200 K.
7. The luminaire shall provide monitoring of the hours in use and the actual temperature.

C. Electrical

1. The luminaire shall be furnished with an internal power supply for 100 to 250 V~, 50/60 Hz supply voltage.
2. The luminaire shall require power from a non-dim source.
3. The nominal power consumption shall be 400 W and shall not exceed 500 W at full output.
4. Available power cord options shall include but not be limited to:
 - a. powerCON TRUE1 TOP cable with bare ends
 - b. powerCON TRUE1 TOP cable and Edison connector
 - c. powerCON TRUE1 TOP cable and Schuko connector
 - d. powerCON TRUE1 TOP cable and Chinese connector
 - e. powerCON TRUE1 TOP cable and Japanese connector
5. In addition, power through shall be possible via powerCON TRUE1 TOP power out plug.
6. Only integrated light engines that will not emit light in the ultra-violet or the Infrared spectrum are acceptable.
7. A control and indicator panel for on-board and remote control shall be available.
8. The fixture shall be equipped with an RDM/DMX interface.
9. An XLR 5-pin DMX in and XLR 5-pin DMX through shall be implemented.
10. Two EtherCON LAN port shall be implemented incl. an integrated EtherNet switch.
11. An XLR 3-Pin port shall be implemented for 48 V DC power input from a regulated external DC source like power station or battery.
12. The fixture shall have two USB-A ports, one 1.5 A and one 0.5 A used for updating the fixture's internal firmware, adjusting operating parameters and for powering external devices; a USB-C port for service purposes.
13. An SD card reader offers an additional option for updating the fixture's internal firmware or favorite storage.
14. An SMA Sync input (TTL) for camera synchronization and external trigger input shall be available.
15. An integrated wireless DMX by LumenRadio CRMX (DMX and RDM commands) shall be available.

D. Optical

1. The optical system shall offer an interchangeable accessory interface with a half peak angle in the range of 80° (without optic). The luminaire should have hard, point-like beam of light and clean shadow rendition with following optical characteristics:
 - a. Aperture dimension with diameter of 42 mm, polygon shaped
 - b. Color rendition index CRI of > 98, TLCI of > 95 and TM30 > 94 at 3,200 to 5,600 K
 - c. Continuously variable correlated color temperature range from 2,000 K – 20,000 K
 - d. Continuously variable green-magenta adjustment
 - e. Full RGBACL color gamut with hue and saturation control
 - f. Digital gel color and source selection
 - g. Color temperature tolerance of 5% (nominal), +/- 1/8 Green-Magenta (nominal)
2. The fixture shall be equipped with an optics recognition technology that reads out the information from the mounted optic, while optics status shows on the user interface in real time.
3. The manufacturer shall ensure that there will be no differences in the quality of the light field between production batches of the lighting fixtures.
4. The fixture should have the following photometric characteristics with open face optics:

@3,200 K

1 m / 3.3 ft		3 m / 9.8 ft		5 m / 16.4 ft		
HiCR	HiOut	HiCR	HiOut	HiCR	HiOut	
15.900 lx	16.100 lx	1.780 lx	1.800 lx	640 lx	645 lx	60°
41.600 lx	44.700 lx	4.620 lx	4.970 lx	1.665 lx	1.790 lx	30°
130.000 lx	138.000 lx	14.445 lx	15.330 lx	5.200 lx	5.520 lx	15°
12.082 fc	12.825 fc	1.342 fc	1.425 fc	483 fc	513 fc	
3.866 fc	4.154 fc	430 fc	462 fc	155 fc	166 fc	30°
1.485 fc	1.490 fc	164 fc	167 fc	59 fc	60 fc	60°

@5,600 K

1 m / 3.3 ft		3 m / 9.8 ft		5 m / 16.4 ft		
HiCR	HiOut	HiCR	HiOut	HiCR	HiOut	
20.000 lx	21.000 lx	2.220 lx	2.333 lx	800 lx	840 lx	60°
54.900 lx	58.000 lx	6.100 lx	6.445 lx	2.195 lx	2.320 lx	30°
162.000 lx	178.000 lx	18.000 lx	19.780 lx	6.480 lx	7.120 lx	15°
15.056 fc	16.543 fc	1.673 fc	1.838 fc	602 fc	662 fc	
5.102 fc	5.390 fc	567 fc	599 fc	204 fc	216 fc	30°
1.859 fc	1.952 fc	206 fc	217 fc	74 fc	78 fc	60°

E. Environmental

1. The fixture shall be rated IP20 for dry location use, IP24 with Rain Cover accessory between -90° (down) and +75° (up) tilt angle.
2. The fixture shall operate in an ambient temperature range of -20°C (-4°F) to 45°C (113°F).

F. Certification

1. The fixture shall be compliant with CE standards as well as ENEC and FCC certified.
2. The fixture shall be UL LISTED, or equivalent certification, to the UL1573 standard for stage and studio use.

G. Operation

1. It shall be possible to remote control the luminaire via USITT DMX 512 A.
2. The fixture shall be fully E1.20 RDM compatible and equipped with a feedback channel for reporting.
3. The fixture shall be fully Art-Net 3 enabled with DMX gateway capability.
4. A removable onboard control with 4" full color graphical display for intensity and color control, and to access to all options and control possibilities shall be available.
5. The fixture shall be accessible via web page when connected to a network and allow changes to fixtures settings, including fixture settings, operational mode, DMX settings and network settings.
6. Special modes of operation should be available including, but not limited to:
 - a. Color Mode: Selects between eight color modes including CCT, HSI, XY Coordinates, RGBACL, Gel Selection, Source Matching, Effects and Color Sensor
 - b. Operational Mode: Selects between max. output (High Output) or best color rendition (High Color). A low noise option for the need quiet operation shall be available too.
 - c. Tungsten Mode: Mimics the behavior of a conventional Tungsten light source
 - d. Dimming Curve Selection: Selection of four dimming curves including exponential, linear, logarithmic, and "S" curve
 - e. Host/Client Mode: Allows for one fixture to control a group of several other ARRI fixtures
 - f. High Speed Mode: For high speed recording up to 25,000 fps and extreme shutter angles
 - g. Color Sensor Mode: Reads and reproduces the ambient color surrounding the fixture
 - h. Lighting Effects: Choose between 15 pre-programmed effects, incl. "Party Effect" that scrolls through hue and saturation
 - i. Color Sensor Calibration: allows for calibration of different light sources to perfectly match the produced light to the ambient light
 - j. Calibrated RGBACL Color Space: generates a calibrated color according to Kodak Pro Photo Color Gamut / ESTA standard E1.54

7. Other functions and setting of the fixture should include:
 - a. Display Setup: Allows for control of the display illumination, brightness, contrast, orientation, and error display setting
 - b. Flash Drive Functions: Allows for the saving of presets, fixture settings and error logs to an external flash drive like USB stick or SD card
 - c. Low Battery Warning: Allows user to set a voltage whereby the fixture will display a warning if a DC voltage should fall below
 - d. DMX Settings: Allows for the adjustment of DMX address, protocol version, and signal loss behavior
 - e. Network Settings: Allows the adjustment of parameters when the fixture is part of a network
 - f. Art-Net Settings: Allows for the adjustment of Art-Net net, subnet, universe, merge mode, state, and gateway
 - g. sACN Settings: Allows for the adjustment of sACN universe
 - h. IP Settings: Allows for the adjustment of the IP Mode and IP Address with the onboard control panel
 - i. User shall be able to define and store 246 favorites.
 - j. Extended Color Control: Allows for modification of the selected color channel
 - k. Favorites: Allows to program, save and load user defined settings
8. The luminaire shall offer seven 8 bit DMX profiles, seven 16 bit DMX profiles, which can be selected by the user.
9. The 8 bit profiles should include but not be limited to following operating modes:
 - a. CCT & RGBACL mode shall require not more than 13 DMX channels and provide control over intensity, color temperature, +/- green, and individual red, green, blue, and white color channels, plus white-color cross fade
 - b. CCT mode shall require not more than 3 DMX channels and provide control over intensity, color temperature, and +/- green
 - c. CCT & HSI mode shall use not more than 6 DMX channels and provide control over intensity, color temperature, +/- green, color hue, color saturation
 - d. RGBACL mode shall use not more than 10 DMX channels and provide control over intensity and individual red, green, blue, amber, lime and cyan color channels
 - e. HSI mode shall use not more than 3 DMX channels and provide control over color hue, color saturation and intensity
 - f. Gel mode shall use not more than 6 channels and provide control over intensity, CCT selection, color matching selection, brand selection, gel category selection, and gel color
 - g. x, y Coordinate mode shall use not more than 3 channels and provide control over intensity, x and y coordinates
 - h. Source Matching mode shall use not more than 3 DMX channels and provide control over source intensity, category selection, and source.
10. The 16 bit profiles should include but not be limited to following operating mode:
 - a. CCT & RGBACL mode shall require not more than 26 DMX channels and provide control over intensity, color temperature, +/- green, and individual red, green, blue, and white color channels, plus white-color cross fade
 - b. CCT mode shall require not more than 6 DMX channels and provide control over intensity, color temperature, and +/- green
 - c. CCT & HSI mode shall use not more than 12 DMX channels and provide control over intensity, color temperature, +/- green, color hue, color saturation

- d. RGBACL mode shall use not more than 20 DMX channels and provide control over intensity and individual red, green, blue, amber, lime and cyan color channels
- e. HSI mode shall use not more than 6 DMX channels and provide control over color hue, color saturation and intensity
- f. Gel mode shall use not more than 8 channels and provide control over intensity, CCT selection, color matching selection, brand selection, gel category selection, and gel color
- g. x, y Coordinate mode shall use not more than 6 channels and provide control over intensity, x and y coordinates
- h. Source Matching mode shall use not more than 4 DMX channels and provide control over source intensity, category selection, and source.

H. Dimming

1. The fixture shall allow continuous linear and flicker free dimming from 0% to 100% in an 8 bit mode (0.3922% per step) or 16 bite mode (0.001529% per step).
2. The smooth dimming behavior shall be achieved by a combination of high PWM frequency, dynamic frequency adaption and current control.
3. In High Speed mode dimming from 100% to 5% shall be possible.

I. Accessories

The following accessories shall be available:

1. General accessories:
 - a. Safety cable
 - b. Mini Noga arm for mounting of Control Panel
2. Optical accessories:
 - a. Open Face 15°, 30° and 60° incl. matching 4 or 8-leaf barndoor
 - b. Omnidirectional Dome in four different sizes (S to XL)
 - c. Softboxes in rectangular shape: DoPchoice Snapbag S & M and Chimera Light Banks S & M
 - d. Softboxes in octagonal shape: Chimera Octa4 and DoPchoice Octa4
3. Other accessories:
 - a. Transporting case
 - b. Soft Bag for Open Face Optics
 - c. Snoot for Open Face
 - d. Rain Cover
 - e. Control Panel
 - f. Skid
 - g. Extension cables for Control Panel
 - h. Yoke for manual and pole operation