School District of Clayton

Request for Bid

THEATER LIGHTING

February 7, 2020

Contact People: Jim Brennell/Tim Wonish
Title: Assistant Director & Director Facility Services
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E-mail: jamesbrennell@claytonschools.net; timwonish@claytonschools.net

Responses must be received by Monday, February 24, 2020 at 1:00 p.m. CST via email with the subject containing **Theater Lighting** to jamesbrennell@claytonschools.net and timwonish@claytonschools.net

Bid Notes:

The School District of Clayton is accepting responses from vendors specific to the specifications and terms and conditions communicated in this solicitation. The School District of Clayton reserves the right to reject any and all responses, to waive technical defects in responses, and select the responses that is deemed most advantageous to the District.

Bid Specifications:

The School District of Clayton is seeking the following goods for purchase:

Quantity: 4
Product: Automated Lighting – White-Light, Light Emitting Diode Framing Moving Head Fixture. See additional details regarding the specifications for this item beginning on page 3 of this Request for Bid.

Pricing must remain fixed.

Supplier Information:

Company Name _____

Contact Name _____

Address _____

_____

_____

Telephone _____

Fax _____

Email _____

Supplier Notes _____

_____

Supplier Bid:

Total Price for 4 Automated Lighting – White-Light, Light Emitting Diode Framing Moving Head Fixture:

$_____

Please note any applicable rebate or discount, if applicable:

_____

_____

_____ My company is unable to bid on this product at this time.

By submitting your response, you certify that you are authorized to represent and bind your company.

Signature _____ Date _____

Print Name _____

A. General
    1. The fixture shall be a high-intensity white-light fixture with Cyan, Magenta, Yellow and CTO subtractive color mixing as well as framing shutters. The fixture shall be a SolaFrame 3000 by High End Systems or approved equivalent.
    2. All LED moving light fixtures shall be provided by a single manufacturer to ensure compatibility.
    3. The fixture shall be UL 1573 listed for stage and studio use and comply with EN60598-2-17 standard per CE certification.
    4. The fixture shall comply with the USITT DMX-512A standard.

B. Physical or Mechanical
    1. The fixtures structural framing shall be constructed of rugged, 1/8" aluminum, free of burrs, pits, and finished with non-reflective matte coating.
    2. Outer covers of head and yoke shall be constructed of ABS plastic with fine textured black surface and fastened to the head frame with quarter turn fasteners.
    3. The fixture dimensions shall be:
        i. 821 mm (32.3") from base of the enclosure, to the tip of the lens baffling;
        ii. 491 mm (19.3") across the exterior dimensions of the yolk;
        iii. The electronics enclosure shall be 368mm (14.5") wide;
        iv. Head length 605 mm (23.8"); and,
        v. Fixtures shall weigh 48 kg (106lbs).
    4. The fixture shall be able to be either truss mounted or set upright on a stable surface. Fixture shall be suitably designed for operation over or under mounted on a truss perpendicular to the ground as well as outrigged parallel to the ground.
    5. The following shall be provided:
        i. Shutter assembly shall be a four plane system capable of rotating +/- 45° and fully crossing the beam on each individual shutter blade. Additionally the entire Shutter assembly must rotate +/- 45°.
        ii. The fixture must include seven (7) interchangeable rotating gobos and seven (7) interchangeable non-rotating gobos. Fixtures that have non-interchangeable gobo patterns shall not be deemed acceptable.
            1. Interchangeable rotating gobos shall have an outside diameter of 30 mm, image diameter of 25mm, and accept 0.5mm Aluminum or 1.1mm Glass Borofloat gobos.
            2. Interchangeable non-rotating gobos shall have an outside diameter of 33 mm, image diameter of 25mm, and accept 0.5 mm Aluminum gobos.
            3. Rotating gobo systems must be able to index to any point on the 360° positioning of the gobo.
        iii. CMY (Cyan Magenta Yellow) and CTO (Color Temperature – Orange) subtractive color mixing system six (6) interchangeable colors including red, blue, green, orange, and dark blue.
            1. Fixture must also contain a custom TM-30 filter that uses green subtraction to increase TM-30 and CRI filters.
        iv. Lens defogging system for preventing atmospheric haze or environmental fog materials from building up and limiting output during operation. Fixtures that do not deploy lens defogging systems shall not be deemed acceptable.
        v. Fixture shall have 540 degrees of pan and 265 degrees of tilt. Pan and tilt must be controlled with 16bit control and utilize encoder sensors to guarantee correct step position.
            1. Fixture shall have a pan speed of 2.65s for 360 degree movement.

2. Fixture shall have a tilt speed of 1.58s for 180 degree of movement.
3. Pan and tilt locks that stop at 0, 45, and 90 degrees for service and handling. Pan and tilt locks are not intended to be engaged during transport in pre-rigged truss.

vi. A 16 leaf iris which reduces the projection area by 97.5%.
vii. Frost system which softens the edges of the projection on a surface that applies evenly across the beam and allows for variation in insertion time.
viii. Automated 7-55° zooming lens system.
ix. Rotating animation wheel that allows for animation in two directions and can be moved in/out of the beam.
x. Three (3) facet triangular prism for multiplication of breakups and images.
1. Prism must be index able, and continuously rotatable in both clockwise and counterclockwise directions.

6. The yolk arms must have collapsible, spring loaded, handles for fixture handling and manipulation. Fixtures with no handles on the yolk arms shall not be deemed acceptable.
7. Power supply, cooling and electronics shall be integral to each unit.
8. The unit shall ship with:
i. 5' Neutrik True1 PowerCon™ to wire ferrule as standard; and,
ii. Two (2) brackets that facilitate attaching standard brackets to the fixture base via ¼ turn thumb screws.

C. Optical
1. The light emitting diode engine shall produce 7000K white light within +/-500K
2. The light engine shall be designed to create a color rendering at greater than 70 CRI
3. The fixture shall produce up to 37,000 field lumens with all LED's at full and in a wide zoom angle.
4. The unit shall provide, but not be limited to:
i. Low gate and beam temperature;
ii. Imaging through a four-plane shutter design; and,
iii. Sharp Imaging on all gobo Planes and Iris planes.
5. The unit shall provide, but not be limited to:
i. 7 through 55 degree field angles;
ii. High-quality pattern imaging from 9.6 to 46 degrees; and,
iii. Sharp shutter cuts without halation. Shutter systems that suffer from warping and burnout in normal use shall be deemed unacceptable.

D. Environmental and Agency Compliance
1. The fixture shall be ETL and cETL LISTED and/or CE rated, and shall be so labeled when delivered to the job site.
2. The fixture shall be ETL LISTED to the UL1573 standard for stage and studio use
3. The fixture shall be rated for IP-20 dry location use.

E. Thermal
1. Fixture shall be equipped with a passive heat pipe radiant cooling System.
2. The fixture shall utilize advanced thermal management systems to maintain LED life to an average of 70% intensity after 20,000 hours of use.
i. Fan speed will be capable of automatically adjusting based on thermal management needs.
1. Fixture will provide three fan speed modes that are selectable via DMX and RDM.
ii. Thermal management shall include multiple temperature sensors within the housing to include LED array circuit board temperatures.

iii. Fixtures that do not provide active thermal monitoring and current management of LED circuits shall not be acceptable.

3. The fixture shall operate in an ambient temperature range of -10°C (14°F) minimum, to 45° C (113°F) maximum ambient temperature. During times of storage, the fixture shall be stored in temperatures range of -20C (0°F) to 60C (140°F).
4. The fixture shall maintain 0.1 m (4 inches) distance from any flammable object.
5. The fixture shall maintain a minimum of 2.0 m (6.5 feet) to any lighted object.

F. Electrical
1. The fixture shall be equipped with a 100V to 240V 50/60Hz auto-sensing internal power supply.
    i. Fixture shall draw a maximum of 14.7 amps at 100V and 5.5 amps at 240 V.
2. The fixture shall support power in and thru operation.
    i. Power in shall be via Neutrik® True1 PowerCon™ input connector.
3. The fixture requires power from a non-dimmer source.
4. Power supply outputs shall have self-resetting current-limiting protection.
5. Power supply shall have power factor correction greater than 0.98 from 100 VAC to 240 VAC.

G. LED Emitters
1. All LEDs used in the fixture shall be high brightness and proven quality from established and reputable LED manufacturers.
    i. Appotronics are the sole manufacture of approved emitter engines.
2. Manufacturer of LED emitters shall utilize an advanced production LED binning process to maintain color consistency.
3. LED emitters should be rated for nominal 20,000-hour LED life to 70% intensity.
4. All LED fixtures (100% of each lot) shall undergo a minimum 12-hour burn-in test during manufacturing.
5. LED system shall comply with all relevant patents.
6. Fixtures shall have user selectable PWM frequency modes of 2,400hz and 16,000hz to avoid flicker on camera.

H. Color
1. The fixture shall be available in specialized LED arrays as outlined below:
    i. Ultra-Brite 7000k white light engine;
        1. White LED Engine calibrated and binned to achieve 7000k (+/- 500k) with a minimum of 70 CRI.
            a. Measured brightness of Ultra-Brite Engine shall be greater than 37,000 lumens when tested on a wall using 25 point lumen calculations.
    ii. High Fidelity 6000k white light engine
        1. White LED Engine calibrated and binned to achieve 6000k (+/- 500k) with a minimum of 95 CRI.
            a. Must achieve TM-30 exceeding Rf-90 and Rg- 100.
            b. Measured brightness of High Fidelity 6000k engine shall be greater than 25,000 Lumens when tested in an integrating sphere.
2. Fixture must have a subtractive color mixing system utilizing eight (8) dichroic color flags, controlled in pairs, to linearly subtract the following colors out of fixtures light output:
    i. Cyan;
    ii. Magenta;
    iii. Yellow; and,
    iv. Color Temperature – Orange.

3. Fixture must have semi trapezoidal dichroic glass color segments on a single wheel that transmit the following colors:
    i. Red;
    ii. Green;
    iii. Blue;
    iv. Orange;
    v. Dark Blue; and,
    vi. Custom TM-30 filter.

I. Dimming
1. The LED system shall use 16-bit DMX control techniques for high-resolution dimming.
2. Dimming curves shall be optimized for smooth dimming over longer timed fades.
3. The LED system shall be digitally driven using high-speed pulse width modulation (PWM).
4. LED control shall be compatible with broadcast equipment in the following way:
    i. PWM control of LED levels shall be imperceptible to video cameras and related equipment.

J. Control and User interface
1. The fixture shall be USITT DMX 512A-compatible via In and Thru 5-pin XLR connectors and In and Thru 3-pin XLR connectors.
2. The fixture shall be compatible with the ANSI RDM E1.20 standard.
    i. All fixture functions shall accessible via RDM protocol for modification from suitably equipped control console.
    ii. Fixtures not offering RDM compatibility, feature set access or temperature monitoring via RDM shall not be compatible.
3. The fixture shall be equipped with multi-line color LCD display for easy-to-read status reports and configuration changes.
    i. Display must have a feature to battery power the menu structure when the fixture is unplugged to allow fixture settings to be adjusted, including DMX.
4. The fixture shall be equipped with a six-button user-interface.
5. The fixture may offer no more than a single DMX control profile.
    i. Fixture DMX Control Profile will have 49 channel control.