Attachment A: Bid Breakdown & Schedule

Bidder: _____

DASNY Contact: Theresa Graffeo, Purchasing Coordinator
tgraffeo@dasny.org

Request for Information (RFI's): RFI's due September 7, 2022. Submit in writing via email to tgraffeo@dasny.org. Responses will be posted to DASNY's website via addenda no later than September 9, 2022. It is the responsibility of the Bidder to obtain Addenda.

Product Required By: As soon as product is available based on product lead times

Description: Furnish and Deliver Stage Lighting Equipment

Bid Open Location: DASNY, Corporate Headquarters, 515 Broadway, Albany, NY 12207

Bid Open Date and Time: September 20, 2022 at 2:30PM

Item No.	Manufacturer	Make/Model	Description	QTY	UOM	Unit Price	Extended Price
1	ETC	Ion Xe 20 – 12K	Stage lighting console with 12,288 DMX outputs, 20 faders and 4 encoder wheels	1	EA	$	$
2	ETC	Eos FW 40	Fader wing for stage lighting console with 40 faders	1	EA		
3	Viewsonic	TD2210	22" touch screen HD monitor with 1920 x 1080 resolution for stage lighting console. Include all needed power and data cables for setup and connection to Ion XE 20	2	EA	$	$
4	APC	BE650G1	Uninterruptable power supply with battery backup and surge protector	1	EA	$	$
5	ETC	RSN-DMX4-O	Data gateway with RJ45 connector for sACN and 4 5-pin XLR connectors for DMX. Each DMX output must be assignable to any DMX universe.	2	EA	$	$
6	Netgear	GS116PP	16-Port POE switch. Include power supply.	1	EA	$	$

7	Chroma-Q	Color Force II 72 RGBA CHCF272RGBA with CHCCL72 Cyc Lens	6' long LED cyclorama light with separately controlled red, green, blue, and amber LEDs. Include hanging irons and clamps.	8	EA	$	$
8	Chauvet	Maverick Force S Profile	350W LED moving head Fixture. Include 2 black Mega-Clamps per fixture	12	EA	$	$
9	ETC	CSSPOTS	LED profile fixture body with integral RGBL LED system, shutters, and lens barrel	12	EA	$	$
10	ETC	LED36LT	36° Enhanced Definition Lens Tube and Lenses for Item 9	4	EA	$	$
11	ETC	LED26LT	26° Enhanced Definition Lens Tube and Lenses for Item 9	6	EA	$	$
12	ETC	LED19LT	19° Enhanced Definition Lens Tube and Lenses for Item 9	2	EA	$	$
13	ETC	CSPARDB	LED PAR style fixture with integral RGIL LED system	22	EA	$	$
14	ETC	CSPARDB	Round, medium 7.5" lens for Item 13	22	EA	$	$
15			5' 12/3 SO PowerCon True1 cable	10	EA	$	$
16			10' 12/3 SO PowerCon True1 cable	22	EA	$	$
17			15'12/3 SO PowerCon True1 cable	5	EA	$	$
18			25' 12/3 SO PowerCon True1 cable	2	EA	$	$
19			10' PowerCon True1 to Edison adapter	2	EA	$	$
20			100', 5-pin XLR, DMX cable	6	EA	$	$
21			50', 5-pin XLR, DMX cable	2	EA	$	$
22			25', 5-pin XLR, DMX cable	4	EA	$	$
23			15', 5-pin XLR, DMX cable	4	EA	$	$
24			10', 5-pin XLR, DMX cable	35	EA	$	$
25			5', 5-pin XLR, DMX cable	10	EA	$	$
26			5', CAT5e RJ45 cable	4	EA	$	$
27			25', CAT5e RJ45 cable	2	EA	$	$
28			100' CAT5e RJ45 cable	3	EA	$	$
29			Inside Delivery		LS		$

TOTAL BID_____

(The below questions 1) and 2) need only be answered if the above total bid is for one million dollars or more)

1. Does your firm anticipate the use of subcontractors and outside suppliers specific to this procurement
   Yes ☐ No ☐
2. Does your firm anticipate the creation of employment opportunities arising from this procurement?
   Yes ☐ No ☐

(The below information must be completed for all bids.)

Identify all subcontractors, if any: _____

STATE, PROVINCE FOR FOREIGN COUNTRY THAT YOUR FIRM'S PRINCIPAL PLACE OF BUSINESS IS LOCATED:

_____

ADDRESS OF FACTORY OR PLANT WHERE ITEMS ARE MANUFACTURED AND/OR ASSEMBLED. *(Attach additional sheet(s) if more than one manufacturer)*

_____

_____

_____

_____

_____
BIDDER (FIRM NAME)

_____
SIGNATURE

_____
NAME (TYPE/PRINTED)

_____
TITLE

_____
Date

Attachment B: Detailed Specifications

STAGE LIGHTING EQUIPMENT

PART 1- GENERAL

1.1 SUMMARY

A. The Stage Lighting Supplier (herein after referred to as the SLS), shall furnish to the Owner all items as specified herein.

1.2 DEFINITIONS

A. “Owner” as used in this section shall mean the representative of Queensborough Community College.

B. “Theatre Consultant” as used in this section shall mean Studio T+L, LLC.

C. “Stage Lighting Supplier” (SLS) as used in this section shall mean the contractor responsible to provide the stage lighting fixtures as noted in the schedule below.

D. Wherever the words "Approved", "Approval", and "Approved equal" appear, it is intended that items other than the model numbers specified shall be subject to the written approval of the Consultant.

E. "Provide", as used herein, shall mean that the SLS is responsible for furnishing and installing said item or equipment.

F. "Furnish", as used herein, shall mean that the SLS shall acquire and make available said item or equipment and that the installation shall be by others.

G. "Install", as used herein, shall mean that the SLS shall make installation of items or equipment furnished by others.

H. “Contract Documents” as used in this section shall be deemed to include both this specification section and related bid drawings.

I. “NIC” as used in the contract documents means, “Not Included in this Contract”

J. “By Others” as used in the contract documents means “provided by another subcontractor”

1.3 CONTROL PROTOCOL REFERENCE STANDARDS

A. All products utilizing the “DMX” or “DMX512” control protocol shall comply with the following ANSI/ Entertainment Services & Technology Association (ESTA) standards:

1. ANSI E1.11 – 2008 (R2018), Entertainment Technology - USITT DMX512-A, Asynchronous Serial Digital Data Transmission Standard for Controlling Lighting Equipment and Accessories.

2. ANSI E1.27-1-2006 (R2021), Entertainment Technology-Standard for Portable Control Cables for Use with USITT DMX512/1990 and E1.11 (DMX512-A) Products.

3. ANSI E1.27-2 – 2009 (R2019), Entertainment Technology - Recommended Practice for Permanently Installed Control Cables for Use with ANSI E1.11 (DMX512-A) and USITT DMX512/1990 Products

B. Products utilizing the “ACN” control protocol shall comply with Entertainment Services & Technology Association (ESTA) ANSI E1.17 – 2015 (R2020), Entertainment Technology - Architecture for Control Networks.

C. Products utilizing the “RDM” control protocol shall comply with Entertainment Services & Technology Association (ESTA) ANSI E1.20 – 2010, Entertainment Technology - RDM - Remote Device Management over USITT DMX512 Networks.

D. Products utilizing the “RDMnet” control protocol shall comply with ANSI E1.33 - 2019, Entertainment Technology -- (RDMnet) -- Message Transport and Device Management of ANSI E1.20 (RDM) Compatible and Similar Devices Over IP Networks.

E. Products utilizing “Lightweight/Streaming ACN” control protocol shall comply with Entertainment Services & Technology Association (ESTA) ANSI E1.31 – 2018, Entertainment Technology – Lightweight streaming protocol for transport of DMX512 using ACN.

1.4 QUALITY ASSURANCE

A. The SLS shall be the exclusive provider of stage lighting fixtures and accessories. The SLS shall provide the following information as part of their bid package.

1. The SLS shall have been continuously engaged in the sale of stage lighting equipment for at least ten years.

2. The SLS shall submit a list of at least five systems of similar scope and size which have been in service for at least six months. Include name, address and telephone number of owner, architect and theater consultant.

B. Pre-approved Manufacturers for the stage lighting fixtures, accessories, and controls are:

1. Altman Stage Lighting, Denver, CO – 303.500.7072
2. Chauvet, Sunrise, FL – 800.762.1084
3. City Theatrical, Carlstadt, NJ – 201.549.1160
4. Enttec, Durham, NC – 888.454.5922
5. ETC, Middleton, WI – 608.831.4116
6. Lex Products, Trumbull, CT – 203.363.3742
7. Lycian Stage Lighting, Sugar Loaf, NY – 845.469.2285
8. Pathway Connectivity Solutions, Calgary, Alberta, Canada – 866.617.3074
9. Strand Lighting, Dallas, TX – 214.647.7880
10. Swisson, Ventura, CA – 805.443.7834
11. TMB, San Fernando, CA – 818.899.8818
12. Union Connector, Jacksonville, FL – 631.753.9550

PART 2 – PRODUCTS

2.1 STAGE LIGHTING CONTROL EQUIPMENT

Item	Manufacturer and Model Number	Description	Quantity	Notes
1	ETC Ion Xe 20 – 12K	Stage lighting console with 12,288 DMX outputs, 20 faders and 4 encoder wheels	1	
2	ETC Eos FW 40	Fader wing for stage lighting console with 40 faders	1	
3	Viewsonic TD2210	22” touch screen HD monitor with 1920 x 1080 resolution for stage lighting console	2	Include all needed power and data cables for setup and connection to Ion XE 20
4	APC BE650G1	Uninterruptable power supply with battery backup and surge protector	1	
5	ETC RSN-DMX4-O	Data gateway with RJ45 connector for sACN and 4 5-pin XLR connectors for DMX.	2	Each DMX output must be assignable to any DMX universe.
6	Netgear GS116PP	16-Port POE switch	1	Include power supply

2.2 STAGE LIGHTING FIXTURES

A. All units, unless otherwise designated, shall be shipped with "C" clamp; grounded power supply cable with male EDISON connector, installed; 1 black (both sides) color frame; safety cable, and lamp (if specified). SLS shall coordinate unit and lamp type where alternate fixtures utilizing different lamps are proposed:

Item	Manufacturer and Model Number	Description	Quantity	Notes
7	Chroma-Q Color Force II 72 RGBA CHCF272RGBA with CHCCL72 Cyc Lens	6’ long LED cyclorama light with separately controlled red, green, blue, and amber LEDs.	8	Include hanging irons and clamps
8	Chauvet Maverick Force S Profile	350W LED moving head fixture	12	Include 2 black Mega-Clamps per fixture
9	ETC CSSPOTS	LED profile fixture body with integral RGBL LED system, shutters, and lens barrel	12	

Item	Manufacturer and Model Number	Description	Quantity	Notes
10	ETC LED36LT	36° Enhanced Definition Lens Tube and Lenses for Item 9	4	
11	ETC LED26LT	26° Enhanced Definition Lens Tube and Lenses for Item 9	6	
12	ETC LED19LT	19° Enhanced Definition Lens Tube and Lenses for Item 9	2	
13	ETC CSPARDB	LED PAR style fixture with integral RGIL LED system	22	
14	ETC SELRM-7.5	Round, medium 7.5” lens for Item 13	22	

2.3 STAGE CABLES AND POWER DISTRIBUTION

A. Stage cables shall be labeled and coded as follows:

1. At the male end of each cable, label the cable with “QCC” followed by the cable length, such as “ 10’ “. The labels shall be completely covered and protected by heavy weight shrink wrap.
2. Color code the cable for length at both ends using two full wraps of colored electrical tape or other approved means. Color codes for length are:

5’	Red
10’	Green
15’	Blue
20’	Brown
25’	Purple
50’	Orange
100’	Yellow

Item	Description	Quantity	Notes
15	5’ 12/3 SO PowerCon True1 cable	10	
16	10’ 12/3 SO PowerCon True1 cable	22	
17	15’12/3 SO PowerCon True1 cable	5	
18	25’ 12/3 SO PowerCon True1 cable	2	
19	10’ PowerCon True1 to Edison adapter	2	
20	100’, 5-pin XLR, DMX cable	6	
21	50’, 5-pin XLR, DMX cable	2	

Item	Description	Quantity	Notes
22	25', 5-pin XLR, DMX cable	4	
23	15', 5-pin XLR, DMX cable	4	
24	10', 5-pin XLR, DMX cable	35	
25	5', 5-pin XLR, DMX cable	10	
26	5', CAT5e RJ45 cable	4	
27	25', CAT5e RJ45 cable	2	
28	100' CAT5e RJ45 cable	3	

PART 3 – EXECUTION

3.1 All fixtures shall be delivered according to the Construction Manager's schedule and neatly stacked in a dry place off the floor.

END SECTION

ETC®

Ion Xe™ 20 Console

Eos Series

100V 115/120V 230/240V

GENERAL INFORMATION

Ion Xe 20 provides complete control of conventional and moving lights, LEDs and media servers. It supports multiple users with partitioned parameter control and full backup, multiple playback faders and cue lists in a tracking, move-fade environment. The desk includes backlit buttons and 20 45mm non-motorized faders with associated displays.

FEATURES

- 2,048 or 12,288 outputs
- 32,768 control channels (any number from 1 - 99,999)
- Up to 99 discrete users
- Partitioned control
- Master playback pair with 100mm faders
- 20 45mm faders x 100 pages for configurable faders, submasters, masters and grandmaster control with two associated high-contrast monochrome LCD displays
- User-definable direct selects
- Four discrete palette types (IFCB)
- Presets function as "all palette"
- Effects provide dynamic relational and absolute progressive behavior
- Central information area (CIA) accesses the browser and other controls
- Four pageable encoders for non-intensity parameter control
- Configurable high-density channel display, with format and flexi-channel modes
- Up to six abstract color spaces, tinting, spectrum and fade path tools.
- User configurable, interactive Magic Sheets
- ETCNet2™ and Net3™ (powered by ACN), ArtNet and Avab® UDP network output protocols
- Show import from Obsession, Express™, Expression®, Emphasis®, Congo®, Cobalt®, Grand MA1, Grand MA2, Safari and Strand 500/300 Series
- Two individually configurable Ethernet ports
- Multiple MIDI and/or SMPTE TimeCode Inputs, Analog/Serial Inputs, OSC transmit/recieve
- Virtual Media Server function for pixel mapped effects, images, animations
- Support for multiple languages, including English, German, Spanish, French, Italian, Japanese, Korean, Russian and Chinese (Simplified and Traditional)

ORDERING INFORMATION

Ion Xe 20

MODEL	DESCRIPTION
Ion Xe 20 - 2K	Ion Xe 20, 2,048 outputs (minimum)
Ion Xe 20 - 12K	Ion Xe 20, 12,288 outputs (maximum)
Ion Xe RPU - 2K	Ion Xe Remote Processor, 2,048 outputs
Ion Xe RPU - 12K	Ion Xe Remote Processor, 12,288 outputs
Ion Xe 10K	After-sale 10K upgrade
ETCnomad 512	Client for Mac/PC

Output protocols are distributed using ETCNet2 DMX Nodes or Net3 DMX/RDM Gateways. I/O Gateways and Show Control Gateways provide switch closure functionality, MIDI and SMPTE TimeCode.

Ion Xe 20 Accessories

MODEL	DESCRIPTION
Eos MFW 10	Eos Motorized Fader Wing 10
Eos MFW 20	Eos Motorized Fader Wing 20
Eos FW 20	Eos Standard Fader Wing 20
Eos FW 40	Eos Standard Fader Wing 40
Net3 RVI3	Net3 Remote Video Interface
ETCpad	ETC Portable Access Device
Ion Xe - FC	Ion Xe Flightcase

Eos Family Offline Editor software for Mac and PC platforms is called ETCnomad and is available for download from www.etcconnect.com

Ion Xe 20 requires Windows 7 compatible external monitors, 1280x1024 minimum resolution, standard, touch or multi-touch

SHIPS WITH:

- Dust cover
- One Littlite
- Mouse and mousepad
- External alphanumeric keyboard
- Two active display-port to DVI adapters
- One locking IEC power cord

SPECIFICATIONS

SYSTEM CAPACITY

- 2,048 or 12,288 Outputs
- 32,768 Control Channels (devices)
- 10,000 Cues
- 999 Cue Lists
- 200 Active Playbacks
- 999 Submasters
- 100 Fader Pages
- 4 x 1,000 Palettes (Intensity, Focus, Color, Beam)
- 1,000 Presets (all palette)
- 1,000 Groups
- 1,000 Effects (relative, absolute or step)
- 99,999 Macros
- 1,000 Snapshots
- 1,000 Curves
- 1,000 Color Paths
- Supports two external display-port monitors at 1280x1024 minimum resolution, with optional touch or multi-touch control
- Solid-state hard drive
- Five USB ports for flashdrives, pointing devices, keyboards

DISPLAY FUNCTIONS

- All show data may be viewed on a single external monitor. External views may be posted separately or expanded across a maximum of two monitors. Three user-configurable workspaces per display, with split-screen/sizing controls.
- The Central Information Area accesses:
  - Browser
  - File Management
  - System Defaults
  - Show Defaults
  - Desk Defaults
  - Partition Definitions
  - Network Configuration
  - Show Data Utilities
  - Print to PDF
  - Record Target Lists
  - Patch functions
  - Help
  - Electronic alpha-numeric keyboard
  - Command Line
  - Selected Cue
  - Error messages
  - Context-Sensitive Control
  - Parameter Categories and individual parameters
  - Filters
- Channel Displays
  - Live channel or table view
  - Blind cue, palette, preset and group views, in list, channel, table and spreadsheet formats
  - User-configurable to show required parameters and/or parameter categories (IFCB)
  - Flexi-channel to determine which channels to display
  - Zoom allows user to define how many channels are viewed
  - Color-coded intensity levels indicate direction of move

SPECIFICATIONS

  - Color-coded non-intensity levels indicate change from previous state
  - Graphic differentiation of moving lights, single parameter devices and unpatched channels
- Magic Sheets
  - User-defined interactive display layouts
  - Objects and images may be imported
- Patch Views
  - Patch by channel
  - Patch by address
  - Patch by Device List (RDM)
  - Assign proportional patch value, curve and, preheat value for intensity
  - Swap pan and tilt
  - Invert pan and tilt
  - Custom fixture editor
  - User configurable shutter order
- Playback Status Display
  - Accesses status of 100 fader pages
  - Expanded cue list for selected cue, optional dynamic countdown of active cues
- Cue List Index
- Effect Editor
- Group Editor
- Park Display
- Dimmer Monitoring
- Submaster List
- Fader Config Display

PLAYBACK CONTROLS

- Master Playback crossfade pair with two 100mm potentiometers, Go, Stop/Back and Load
- 50 pages of 20 45mm faders, each configurable as:
  - IFCB Palette/Preset Lists or single instances
  - Cue Playback, with user-configurable button/slider behavior
  - Grand Master with Blackout
  - Additive or Inhibitive Submaster, with user-configurable button/slider behavior
  - Filtered Manual Timing Master
- Rate Controller
- Playback fader controls include:
  - Load to assign cue lists
  - Timing Disable
  - Off/On
  - Release
  - Freeze
  - Assert
  - Manual Override
  - Rate
  - Go To Cue 0
  - Spread
  - Background Enable/Disable
  - 10 Priority States
  - 10 Background Priority States
  - Parameter and channel filters
- Macros
  - May be set to play background or foreground
  - Startup and Shutdown Macros
  - Disconnect Macros

SPECIFICATIONS

MANUAL CONTROL

- Channel selection from keypad and/or multi-touch direct selects
- Lists constructed with +, -, thru
- Intensity set with level wheel, keypad, level button, full and out
- Select Last recalls last sequential channel selection set
- Select Manual selects all channels with manual values
- Select Active selects all channels with intensity above zero
- Ordered groups
- Offset; including even, odd, random and reverse
- Fan
- Sneak
- User-definable home
- Home by parameter, parameter category or all non-intensity parameters
- Capture
- Park at level
- Scaled park for temporary percentage adjustment
- Recall-from and Copy-to commands
- About provides detailed view of selected channels or record targets
- Undo
- Highlight and Lowlight, with optional user-definable Rem Dim
- Lamp controls to strike and douse arc sources, calibrate devices

PROGRAMMING FEATURES

- Channel Functions
  - Non-intensity parameters set via numeric entry or pageable encoders
  - Encoders support software-controlled tactile response
  - Local display of color and gobo images
  - Color matching to gel selector
  - Color Path, color tinting and color spectrum tools.
  - Apply discrete time and delay per channel parameter
- Palette and Preset Functions
  - Record and Update
  - Toggle display to absolute data
  - Up to 999 decimal values may be inserted between any two whole numbers
- Effects
  - Create live or blind
  - Pattern-based relative dynamic effects
  - Absolute effects
  - Step effects
  - Channel level overrides
  - Cue level overrides
  - Entry mode determines how parameters enter effects
  - Exit mode determines how parameters depart effects
- Cue Recording
  - Cue List HTP/LTP Intensity
  - Cue List Priority and Background Priority
  - Cue List Assert
  - Fader as progress controller, manual or intensity master
  - Record manual values or channels in use
  - Auto playback of recorded cues
  - Referenced or auto-mark instructions
  - Block at cue or parameter level
  - Assert at cue or parameter level
  - All-fade flag

SPECIFICATIONS

  - Follow or hang times
  - Out of sequence link
  - Loop functions
  - Cue level parameter category timing
  - 20-part multi-part cues
  - Cue-level rate override
  - Mark flags for Auto or Referenced and Referenced Priority Marks
  - Up to 999 decimal cues between each two whole-numbered cues
  - Execute List
    - Triggers snapshot
    - Triggers macros
    - Triggers go of other cues
    - Syncs go to multiple cue lists
    - Show-control triggers
    - Analog triggers
  - Update and Update Trace functions
  - Undo record and delete
- Submaster Recording and Playback
  - 999 additive or inhibitive submasters
  - Bump button timing for fade up/dwell/fade out
  - Assert/Channel select button
  - Exclusive or Shielded Mode
  - Background enable/disable
  - Restore to background or minimum value
  - LTP/HTP intensity
  - Fader as progress controller or intensity master
  - Bump button to mark NPs
  - Priority and Background Priority status
  - Motorized faders match level across all devices and when paging
  - Submaster mapping on the fly
- Curves
  - Assignable in patch to modify dimmer output ramp
  - Assignable at cue or cue part level to modify intensity crossfade profile or non-intensity parameter ramping

INTERFACES

- Two individually configurable ethernet ports
- ETCNet2, Net3 (powered by ACN), ArtNet and Avab UDP output protocols
- Four DMX/RDM ports
- Contact-closure triggers via D-Sub connector
- Two video connectors support display-port external displays (1280x1024) with optional single-touch or multi-touch screen control
- USB multipurpose (five ports)
- OSC Transmit/Receive
- UDP Transmit/Receive
- MIDI TimeCode, MIDI Show Control through Gateway
- SMPTE TimeCode through Gateway
- Contact closure (12 analog inputs, 12 SPDT contact outputs, RS-232) through Gateway

ELECTRICAL

- AC input (100 - 240V at 50/60 Hz)
- Power consumption (less external monitors) approximately 1 amp at 120V or 230/240V

PHYSICAL

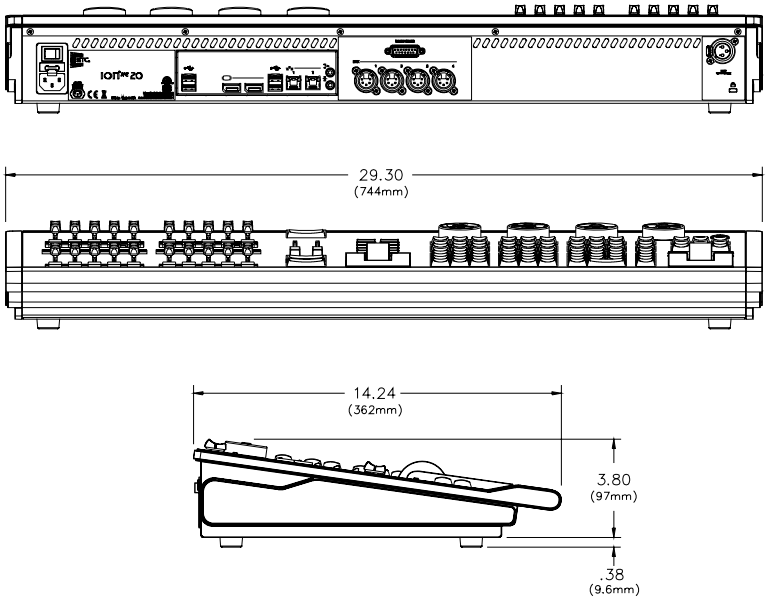
Ion Xe 20 Dimensions*

MODEL	HEIGHT		WIDTH		DEPTH	
	inches	mm	inches	mm	inches	mm
Ion Xe 20	4.10	104	29.30	744	14.24	362
Ion Xe 20 in shipping container	7.75	197	36.50	927	18.50	470
Ion Xe 20 in roadcase	8.34	212	45.12	1,146	19.45	494

Ion Xe 20 Weights*

MODEL	WEIGHT	
	lbs	kgs
Ion Xe 20 console	16.6	7.35
Ion Xe 20 in shipping container	22.5	9.98
Ion Xe 20 in roadcase	46.7	TBD

*Weight and dimensions typical



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ETC®

Eos Fader Wings

100V 115/120V 230/240V

Eos® Series

GENERAL INFORMATION

The Eos fader wings may be used to provide extended playbacks for Eos Ti, Gio, Gio @5, Ion, Ion Xe, Ion Xe 20, Eos/Ion/Ion Xe RPUs, RVIs, ETCnomad (PC or Mac native) and ETCnomad Puck.

Up to three wings may be attached to any of these devices. There are two wings – a x40 and x20. The x40 has 40 45mm faders, four 4.2" high-resolution monochrome LCDs and two control buttons. The x20 includes 20 faders, two displays and two control buttons per fader. The wing provides power sensing and automatically turns on when both an active USB data connection and mains power are provided via the external 12V power supply.

Connected devices must be running Microsoft Windows 7 or higher or Mac OSX 10.11 (El Capitan) or later. These wings are NOT compatible with Windows XP.

FEATURES

- Pageable playbacks (100 pages are supported)
- Paging/bank conventions are determined in a setup menu
- Button/fader and configuration mapping displayed via high-resolution displays.
- Two powered USB ports
- VESA 100x100mm mountable
- Kensington Lock compatible locking point

INTERFACES

- AC Input (100 – 240VAC at 50/60Hz) with external power supply
- Two USB ports

ORDERING INFORMATION

Eos Fader Wings

MODEL	DESCRIPTION
Eos FW 40	Eos Standard Fader Wing 40
Eos FW 20	Eos Standard Fader Wing 20

Eos Fader Wing Accessories

MODEL	DESCRIPTION
Eos 2W FC	Eos Combined Wing Flight Case
Eos PGW	Eos Programming Wing
ETCnomad (512 or 6144)	ETCnomad (512 or 6,144 Output Kit)
ETCnomad Puck (512 or 6144)	ETCnomad Puck (512 or 6,144 Output)

Ships with

- Power supply
- IEC power cord
- Dust cover
- USB cable

The wing is compatible with

- Eos Ti
- Gio
- Gio @5
- Ion (Windows 7 only)
- Ion Xe and Ion Xe 20
- Eos/Ion/Ion Xe Remote Processor Units
- RVI/RVI3
- ETCnomad for PC/Mac (requires ETCnomad Lighting Controller Kit and output device)
- ETCnomad Puck

Note: These wings are not supported on Element or any Windows XP devices.

PHYSICAL

Eos Fader Wing Dimensions*

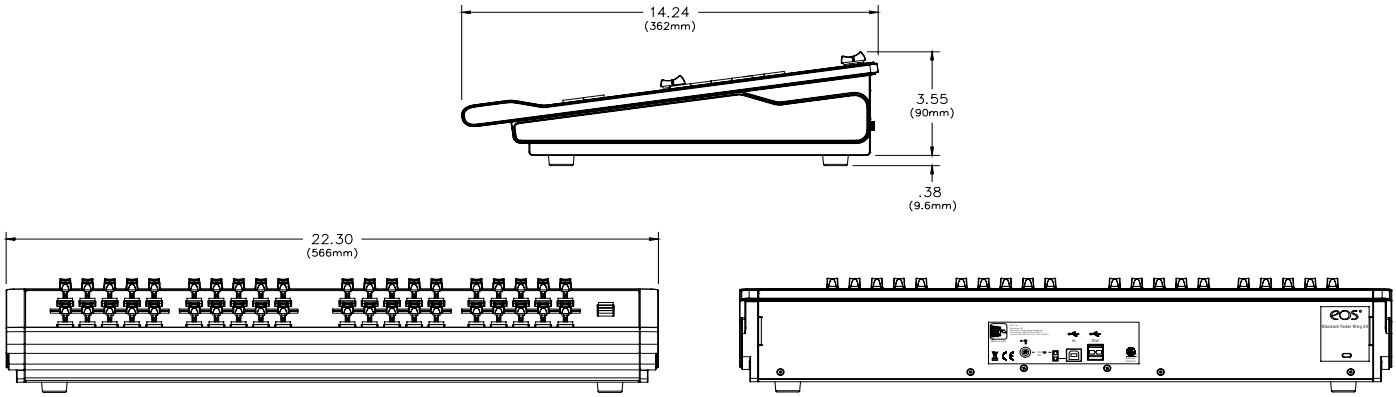
MODEL	HEIGHT		WIDTH		DEPTH	
	inches	mm	inches	mm	inches	mm
Eos FW 40	3.93	100	22.30	566	14.24	362
Eos FW 20	3.93	100	12.10	307	14.24	362
Eos FW 40 with Flight Case	7.75	197	26.75	679	18.50	470
Eos FW 20 with Flight Case	7.75	197	17.00	432	18.50	470

Eos Fader Wing Weights*

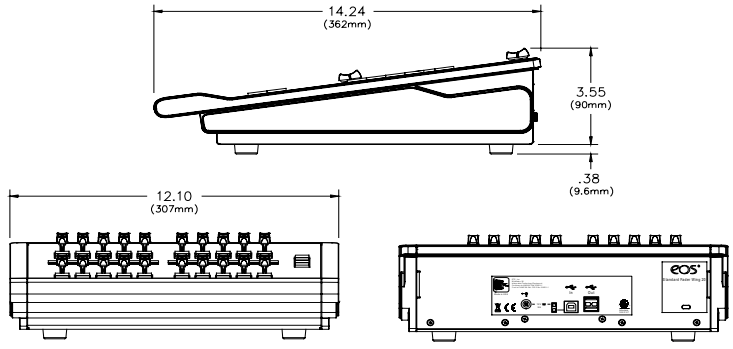
MODEL	WEIGHT		SHIPPING WEIGHT	
	lbs	kgs	lbs	kgs
Eos FW 40	8.5	3.86	13.5	6.13
Eos FW 20	5.0	2.27	9.3	4.22

*Weights and dimensions typical

EOS FADER WING 40



EOS FADER WING 20



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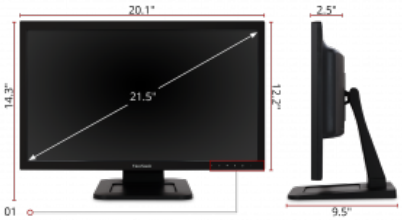
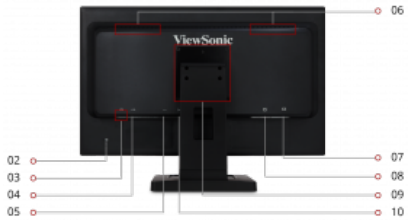
Key **Features**

Resistive Touch Technology | Versatile Connectivity | MEGA Dynamic Contrast Ratio | Dual Integrated Speakers

Product **Description**

The TD2210 is a 22" (21.5" viewable) Full HD monitor with resistive touch technology. With a robust, pressure-sensing touchscreen that is resistant to screen contamination, the TD2210 is ideal for use in retail, POS, and commercial environments. Resistive touch technology on the TD2210 is also fully functional in gloved environments and compatible with styluses. Featuring stunning Full HD resolution and 20M:1 MEGA Dynamic Contrast Ratio, the TD2210 delivers extremely sharp and crisp images. Flexible connectivity options include VGA, DVI, and USB ports, and a VESA-mountable design offers additional convenience for use as a wall-mounted display. Industry-leading warranty protection and ViewSonic product quality makes this durable touch display a great long-term investment for a variety of environments.





1. Menu Control Panel
2. Kensington Lock Slot
3. USB 2.0 Type A (x2)
4. USB 2.0 Type B
5. AC In
6. Internal Speakers
7. VGA
8. DVI
9. VESA Compatible Wall Mount (100 x 100 mm)
10. Headphones

22"
DISPLAY

TN
PANEL

1920 x 1080
RESOLUTION

Contact Sales

- call: 888.881.8781
- email: salesinfo@viewsonic.com
- visit: viewsonic.com

Display:

Display Size (in.):	22
Viewable Area (in.):	21.5
Resolution:	1920 x 1080
Static Contrast Ratio:	1,000:1
Dynamic Contrast Ratio:	20M:1
Brightness:	250 cd/m2
Backlight Life (Hours):	40,000
Response Time (Typical GTG):	5ms
Panel Type:	TN
Colors:	16.7M
Viewing Angles:	170º horizontal, 160º vertical
Light Source:	LED
Panel Surface:	3H Scratch Resistant Surface Hardness
Aspect Ratio:	16:9

Compatibility:

PC Resolution (max):	1920 x 1080

Touch:

Touch Technology:	Resistive
Touch Points:	1-Point Touch

Connector:

USB Type A(1), USB Type B(1), VGA(1), DVI-I(1)

Audio:

Internal Speakers:	2W (x2)

Video Signal:

Frequency Horizontal:	24 ~ 83KHz
Frequency Vertical:	50 ~ 76Hz

Video Input:

Analog Sync:	Separate Sync / Composite Sync / Sync on Green

Power:

Eco Mode (Conserve):	11.5W
Eco Mode (optimized):	14W
Consumption (typical):	17.5W
Consumption (max):	29.5W
Voltage:	AC 100-240V (universal), 50-60Hz
Stand-by:	0.5W

Controls:

Physical Controls:	GameMode, 1, 2, 3, 4, Power
On Screen Display:	Auto Image Adjust, Contrast/Brightness, Input Select, Audio Adjust, Color Adjust, Information, Manual Image Adjust, Advanced Image Adjust, Setup Menu, Memory Recall (See user guide for complete OSD functionality)

Operating Conditions:

Temperature:	32-104º F (0 - 40º C)
Humidity (non-condensing):	20-90%

Ergonomics:

Tilt (Forward/Back):	5º / 20º

Additional Hardware:

Kensington Lock Slot:	1

Mount:

VESA Compatible:	100 x 100 mm

Weight (metric):

Gross (kg):	6.5
Net (kg):	4.8
Net Without Stand (kg):	3.9

Weight (imperial):

Net (lbs):	10.5
Net Without Stand (lbs):	8.7
Gross (lbs):	14.4

Dimensions (metric) (WxHxD):

Packaging (mm):	570 x 427 x 214
Physical (mm):	512 x 364 x 240
Physical Without Stand (mm):	512 x 311 x 64

Dimensions (imperial) (WxHxD):

Packaging (in.):	22.4 x 16.8 x 8.4
Physical (in.):	20.1 x 14.3 x 9.5
Physical Without Stand (in.):	20.1 x 12.2 x 2.5

General:

Regulations: cULus, FCC-B, ICES003, Energy Star, EPEAT, UL-MX-CoC, Mexico Energy

PACKAGE CONTENTS: LCD Display, Power Cable, VGA Cable, DVI Cable, USB2.0 Cable, Audio Cable, Quick Start Guide, ViewSonic Wizard CD-ROM

Warranty: Three-year limited warranty on parts, labor and backlight

Recycle/Disposal: Please dispose of in accordance with local, state or federal laws.

UPC: 766907856217

Accessories:

CB-00008187, CB-00008948, LCD-CABLE-001, LCD-CMK-001, LCD-DMA-001, LCD-DMA-002, LCD-WMK-001, TD-EE-22-03, TD-EEEW-22-01, TD-EEEW-22-02, TD-EW-22-01, TD-EW-22-02, TD-EW-22-03, VSPF2150, cb-00011486

Awards:

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Product data sheet

Specifications

APC Back-UPS 650VA, 120V, 8 NEMA outlets (4 surge)

BE650G1

Overview

Lead time	Usually in Stock

Main

Main Input Voltage	120 V
Main Output Voltage	120 V
Kw Rating	390 W
Rated power in VA	650 VA
Plug standard	NEMA 5-15P
Nb of power socket outlets	4 NEMA 5-15R 4 NEMA 5-15R surge
Cable length	5 ft (1.52 m)
Number of cables	1
Battery Type	Lead-Acid battery
Provided equipment	User Manual USB cable

General

Max runtime	62 min
Number of power module free slots	0
Number of power module filled slots	0
Redundant	No

Physical

Color	Black
Height	3.46 in (8.8 cm)
Width	7.09 in (18 cm)
Depth	11.89 in (30.2 cm)
Net Weight	13.67 lb(US) (6.2 kg)
Mounting preference	No preference
Mounting Mode	Not rack-mountable

Disclaimer: This documentation is not intended as a substitute for and is not to be used for determining suitability or reliability of these products for specific user applications

Two post mountable	0
USB compatible	Yes

Input

Input Frequency	60 Hz +/- 3 Hz
Efficiency at full load	90...140 V
Maximum Input Current per Phase	12 A

Output

Max Configurable Power (Watts)	390 W
Output Frequency (sync to mains)	60 Hz +/- 3 Hz sync to mains
Topology	Standby
Waveform Type	Stepped approximation to a sinewave
Maximum output current	12 A
Maximum configurable power in VA	650 VA
Transfer Time	8ms typical : 12ms maximum

Conformance

Product Certifications	California (CEC) Battery Charger ENERGY STAR V2.0 (USA) NOM TÜV-C
Standards	CSA C22.2 No. 107.1 FCC Part 15 class B FCC part 68 UL 1778
Equipment protection policy	Lifetime : $75000

Environmental

Ambient Air Temperature for Operation	32…104 °F (0…40 °C)
Relative Humidity	5…95 %
Operating altitude	0...10000 ft
Ambient Air Temperature for Storage	5…113 °F (-15…45 °C)
Storage Relative Humidity	5…95 %
Storage altitude	0…50000 ft (0.00…15240.00 m)
Acoustic level	45 dBA

Batteries & Runtime

Typical recharge time	24 h
RBC Quantity	1
Battery Voltage	12 V
Battery Capacity	9.0 Ah
Battery Charge Power (Watts)	3 W rated
Battery power in VAH	79 VAh runtime
Battery Life	2…5 year(s)

Battery graph comments	This graph is based on actual measured runtime data. All measurements were taken with new, fully charged batteries and a balanced resistive load (PF = 1.0). Actual runtimes may vary from the values of this graph. Actual runtimes are dependent on several variables including battery age, battery charge level, environmental conditions and characteristics of the connected load.
Extendable Run Time	0

Communications & Management

Control panel	LED status display with On Line : On Battery : Replace Battery and Building Wiring Fault
Audible Alarm	Alarm when on battery : distinctive low battery alarm

Surge Protection and Filtering

Surge energy rating	340 J
Filtering	Full time multi-pole noise filtering : 5% IEEE surge let-through : zero clamping response time : mee
Data line protection	RJ45 10/100 Base-T Ethernet protection
Let Through Voltage Rating	330 V

Ordering and shipping details

Category	11309 - APC RESALE PRODUCTS
GTIN	731304285434
Nbr. of units in pkg.	1
Package weight(Lbs)	1 lb(US) (0.45 kg)
Returnability	No

Packing Units

Package 1 Height	5.04 in (12.8 cm)
Package 1 width	9.25 in (23.5 cm)
Package 1 Length	15.47 in (39.3 cm)
SCC14	10731304285431
Number of Units in Package 2	2
Package 2 Weight	31.68 lb(US) (14.37 kg)
Package 2 Height	10.39 in (263.91 mm)
Package 2 width	11.1 in (281.94 mm)
Package 2 Length	15.9 in (403.86 mm)
Number of Units in Package 3	48
Pallet unit layers	20
Pallet layers	5

Offer Sustainability

Sustainable offer status	Green Premium product
California proposition 65	WARNING: This product can expose you to chemicals including: Lead and lead compounds, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov
ENERGY STAR®	ENERGY STAR UPS V2.0 (USA)
REACh Regulation	REACh Declaration
EU RoHS Directive	Compliant EU RoHS Declaration
Mercury free	Yes

RoHS exemption information	Yes
Environmental Disclosure	Product Environmental Profile
Circularity Profile	End of Life Information
Optimized Energy Efficiency	Energy efficient product
Take-back	Take-back program available

Contractual warranty

Warranty	3 years repair or replace

ETC

Response Mk2 4-Port Gateway

Gateway Series

Type(s)

Project

Date

Notes

GENERAL INFORMATION

ETC's Response Mk2 Four-Port Gateway provides data distribution using the quality and reliability of ETC's network technology. Built for Net3 using industry-standard sACN, DMX and RDM, the Response Gateway unlocks the power of your networked system.

APPLICATIONS

- Road houses
- Touring
- University/professional theaters
- Convention halls
- Tech tables
- Stage manager panels
- System integration

FEATURES

- Distributes DMX and RDM data to any input/output device over Ethernet
- Supports Net3 protocol powered by ACN
- Configurable DMX/RDM Output or Input
- Simple configuration and service of each port
- Onboard screen and buttons for labeling, status and configuration
- Power, network and port direction status indicators
- Touch to Wake Sensor
- Power over Ethernet (PoE) or external DC power supply
- Configurable using Concert Software

ORDERING INFORMATION

Four-Port Gateways

MODEL	DESCRIPTION
RSN-DMX4-O	Response Mk2 4-Port Gateway - 4 Output
RSN-DMX4-I	Response Mk2 4-Port Gateway - 4 Input
RSN-DMX4-3O1I	Response Mk2 4-Port Gateway - 1 In 3 Out
RSN-DMX4-T	Response Mk2 4-Port Gateway - 4 Terminal
RSN-DMX4-R	Response Mk2 4-Port Gateway - 4 RJ45

Four-Port Gateway Accessories

MODEL	DESCRIPTION
N34G-FP4F[1]	Gateway Front-Panel Kit - DMX 4 Out
N34G-FP4M[1]	Gateway Front-Panel Kit - DMX 4 Input
N34G-4P2M2F[1]	Gateway Front-Panel Kit - DMX 2 In 2 Out
PS-INTL[2]	Gateway Universal Power Supply
N3GA-RM	Gateway Rack-Mount Kit
N3GA-HBU	Gateway Hanging-Bracket Kit with U-Bolt

[1]Does not include required Rack-Mount kit

[2]Includes plugs for United States/Japan, Europe, and Great Britain.

SPECIFICATIONS

FUNCTIONAL

- Supports Net3/ACN (ANSI E1.31 and E1.17)
- Supports RDM (ANSI E1.20)
- Supports USITT DMX512-A (ANSI E1.11)
- USITT DMX512 and ANSI E1.11 DMX512-A compliant
- Flexible Output Patch allows a 512-address universe to begin at any output address
- Advanced Input Patch
- Support for per-address- or per-universe-level priority
- Maximum delay time from input to output not greater than one packet time
- Selectable DMX refresh rate with a maximum at least 40Hz
- Supports up to 256 total RDM devices

MECHANICAL

- Intuitive four-button interface
- Onboard display for identification, status and configuration
- Fabricated from 16-gauge cold-rolled steel
- Black, Fine-textured, powder-coat finish
- C-clamp and U-bolt hardware available
- Half 19" equipment rack width allows for up to eight DMX ports in 1U height
- Network, power and data activity LED indicators
  - Blue power indicator, green network activity indicator
  - Bi-color DMX activity indicator
- RJ45 for connection to lighting network
- Reset button for hard reset or forced reboot

ENVIRONMENTAL

- Ambient operating temperature: 0°–40° C (32°–104° F)
- Operating humidity: 5–95% non-condensing
- Storage temperature: -40°–70° C (-40°–158° F)

ELECTRICAL

- Compliant with IEEE 802.3i for 10BASE-T, 802.3u for 100BASE-TX and 802.3af for Power over Ethernet
- 12–24 VDC power input for use with non-PoE systems
- Maximum seven watt current draw
- Screw down and IDC connector options provided for terminal version

CONFIGURATION

- Local configuration options
- Remote configuration provided by Net3 Concert
  - Supports up to 512 DMX addresses per port
  - Supports up to 63,999 Streaming ACN universes
- DMX data input or output configurable by user
- Multiple sources may be combined to the network with each source or address allowed an independent priority
- Individual port start address and offset
- User-configurable labeling

REGULATORY AND COMPLIANCE

- cETLus Listed
- CE compliant
- EAC certified
- RoHS compliant
- WEEE

ADDITIONAL INFORMATION

DMX512

Often shortened to DMX (Digital Multiplex), this communication protocol is used mainly to control dimmers and multi-parameter fixtures. A universe of DMX is defined as 512 channels. DMX sends a nearly continuous stream of level information for each control channel. It is a form of RS-485 digital serial communication.

RDM

Remote Device Management (ANSI E1.20) is a protocol enhancement to DMX512 that allows low-speed bidirectional communication between a system controller and attached RDM devices over a standard DMX line. This protocol will allow remote configuration, status monitoring, and management of devices.

sACN

Streaming ACN (ANSI E1.31), sends DMX-style control over TCP/IP networks. It provides a fast and efficient mechanism to transport the well-understood DMX protocol over Ethernet using an industry-standard protocol.

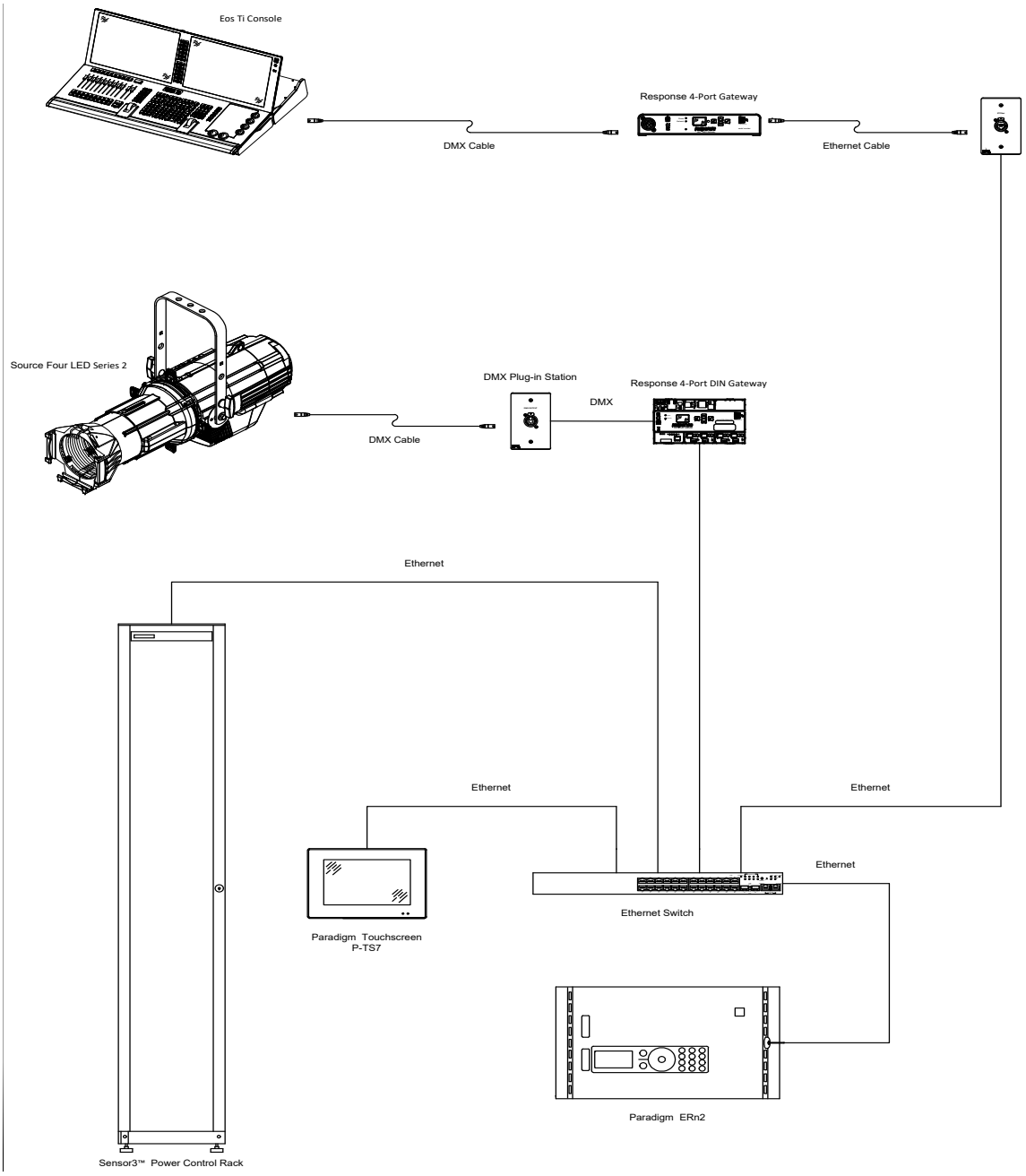
ACN

Architecture for Control Networks (ANSI E1.17) is a standard for high-speed bidirectional communication over TCP/IP on Ethernet network infrastructure. ACN is an open suite of protocols used between network devices for the purposes of greater and more adaptive control.

NET3

ETC's enhanced implementation of the standard ACN Protocol Suite (ANSI E1.17 and E1.31) including additional communication protocols for specialized applications and support of legacy systems.

TYPICAL SYSTEM RISER



PHYSICAL

Response Four-Port Gateway Dimensions

MODEL	HEIGHT		WIDTH		DEPTH	
	in	mm	in	mm	in	mm
Gateway	1.65	42	8.50	216	7.50	191

Net3 Four-Port Gateway Accessories

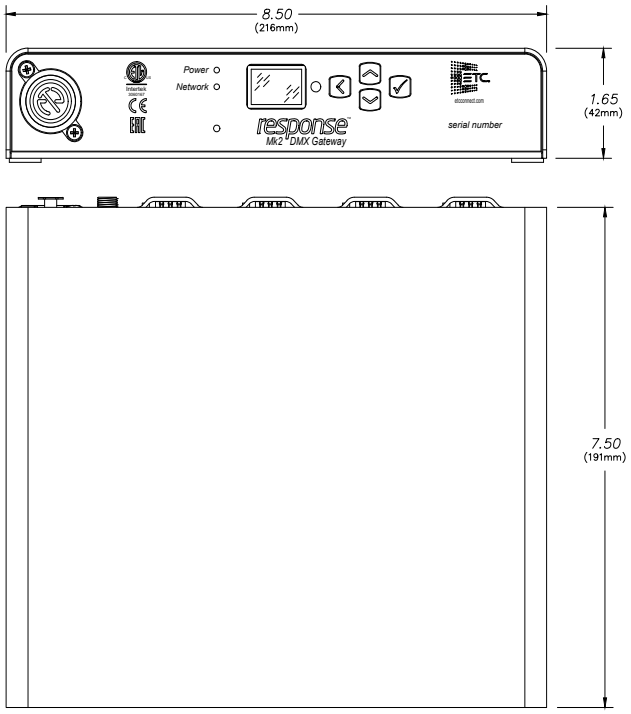
MODEL	WEIGHT		SHIPPING WEIGHT	
	lb	kg	lb	kg
N34G-FP4F[1]	1.1	0.5	2.0	0.9
N34G-FP4M[1]	1.1	0.5	2.0	0.9
N34G-FP2M2F[1]	1.1	0.5	2.0	0.9
N3GA-PS	0.5	0.2	1.0	0.5
N3GA-RM	1.5	0.7	2.0	0.9
N3GA-HBU	0.8	0.4	1.0	0.5

[1]Does not include required Rack-Mount Kit

Response Four-Port Gateways Weights

MODEL	WEIGHT		SHIPPING WEIGHT	
	lb	kg	lb	kg
RSN-DMX4-O	1.75	0.79	3.5	1.59
RSN-DMX4-I	1.75	0.79	3.5	1.59
RSN-DMX4-3O1I	1.75	0.79	3.5	1.59
RSN-DMX4-T	1.75	0.79	3.5	1.59
RSN-DMX4-R	1.75	0.79	3.5	1.59

Response Four-Port



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*Trademark and patent info: etcconnect.com/IP

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NETGEAR®
BUSINESS

Data Sheet | **GS108LP, GS108PP, GS116LP, GS116PP**

8-port and 16-port Gigabit Ethernet Unmanaged PoE/PoE+ Switches

Outstanding Power with Flexible Placement

The NETGEAR® Gigabit Unmanaged Switch series helps businesses cost-effectively increase power budget to expand their network.

Powered by the industry's first flexible PoE+ integrated technology, you can increase or decrease the PoE budget by simply buying a new power supply, effectively futureproofing small business networks and budgets.

All ports support PoE/PoE+ that makes them the perfect switches for deploying Wireless APs, Pan/Tilt/Zoom and fixed IP Cameras, VoIP Phones, access-limited security door locks or any other IoT PoE-powered devices.

The GS108LP, GS108PP, GS116LP and GS116PP Gigabit Ethernet switches come with 8 and 16 Gigabit copper ports in a desktop metal case.

The small form factor combined with the rack-mount and wall-mount accessories give you the flexibility to place these switches in small cabinets, in a 19" rack, on a wall or on your desk.

Highlights

All ports Support PoE+
All ports are able to provide up to 30W per port to any power-hungry device (PTZ cameras, PoE Lights, PD Switches, Access Points, more)

Flexible PoE Budget
NETGEAR's exclusive FlexPoE with interchangeable external power adapters allow you to increase (or decrease) your PoE budget as your needs change.
GS108LP/GS108PP: 60W, 83W, 123W PoE Budget
GS116LP/GS116PP: 76W, 115W, 183W PoE Budget

Flexible mounting options
Adapts to your needs and configuration in any environment. Desktop, wall-mount, or rack-mount with included mounting kits.

Compact, fanless, silent design
Small form-factor, fanless design for silent operation. Perfect for noise-sensitive environments.

Queensborough Community College | PAC ADA RECONSTRUCTION | TYPE: POE Switch

CUNY Project No. QB042-012 | Section 116163 | Page 1 of 8

Hardware at a Glance

Model Name	Form-Factor	10/100/1000 Base-T RJ45 ports	PoE/PoE+ 802.3af/ 802.3at Ports	PoE Budget/PSU	LEDs	PSU Supported/ PoE Budget	Fans
GS108LP	Desktop, wall & rack mount	8	8	PoE Budget: 60W PSU: 67.5W	Power, Port Link/Speed/Activity	PSU: 67.5W/90W/130W PoE: 60W/83W/123W	Fanless
GS108PP	Desktop, wall & rack mount	8	8	PoE Budget: 123W PSU: 130W	Power, Port Link/Speed/Activity	PSU: 67.5W/90W/130W PoE: 60W/83W/123W	Fanless
GS116LP	Desktop, wall & rack mount	16	16	PoE Budget: 76W PSU: 90W	Power, Port Link/Speed/Activity	PSU: 90W/130W/200W PoE: 76W/115W/183W	Fanless
GS116PP	Desktop, wall & rack mount	16	16	PoE Budget: 183W PSU: 200W	Power, Port Link/Speed/Activity	PSU: 90W/130W/200W PoE: 76W/115W/183W	Fanless

GS108LP/GS108PP

- 8 x Gig Copper Ports
- 8 x 802.3af/802.3at Ports
- Desktop, Wall-mount and 19-inch Rackmountable
- Small Form Factor

GS108LP/GS108PP rear

- Interchangeable External Power Supply

GS116LP/GS116PP

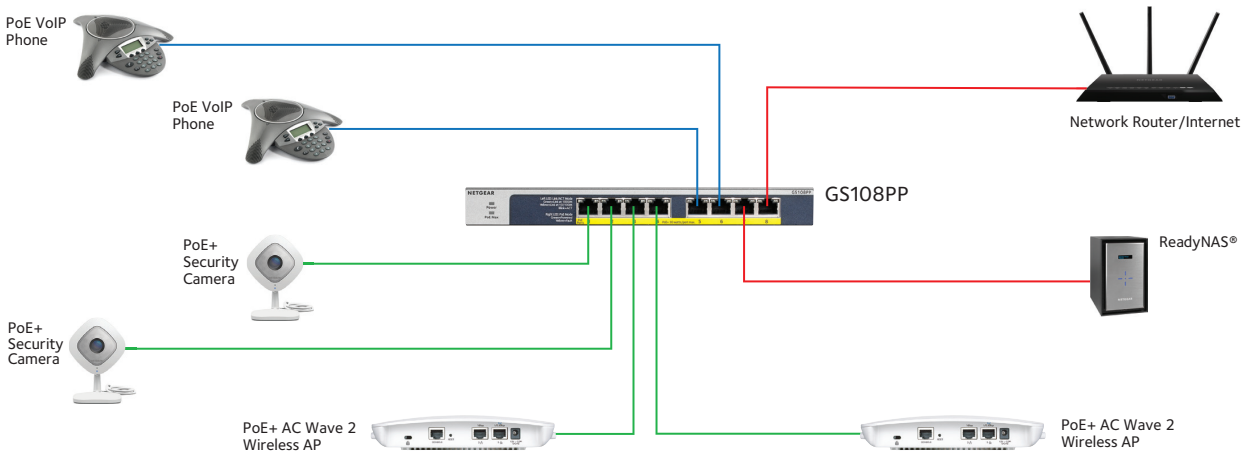
- 16 x Gig Copper Ports
- 16 x 802.3af/802.3at Ports
- Desktop, Wall-mount and 19-inch Rackmountable
- Small Form Factor

GS116LP/GS116PP rear

- Interchangeable External Power Supply

Example Application

GS108LP/GS108PP in a Business Environment



GS108LP/GS108PP in a Business Environment

The following table describes the PoE classes and switch allocations.

Device Class	Standard	Class Description	Minimum Power Allocated to the Powered Device	Range of Power Delivered to the Powered Device
0	PoE and PoE+	Default power (full)	0.44W	.044W - 12.95W
1	PoE and PoE+	Very low power	4.0W	0.44W - 3.84W
2	PoE and PoE+	Low power	7.0W	3.84W - 6.49W
3	PoE and PoE+	Mid power	15.4W	6.49W - 12.95W
4	PoE+ only	High power	30.0W	12.95W - 25.5W

Why the NETGEAR PoE/PoE+ Switches are ideal for SMB

- Upgradable PoE budget with interchangeable power supplies
- Small form factor and silent for quiet operation
- Plug-and-play, automatic connectivity to your router or modem
- Prioritize voice and video traffic
- Lifetime Warranty* plus lifetime online support and lifetime Next Business Day (NBD) replacement

Accessory Power Adapters

Increase or decrease your PoE budget anytime by simply upgrading your switch Power Supply, without having to purchase a new switch. Future-proof your PoE budget with GS108LP or GS116LP. And if you have power-hungry devices and directly need a high power PoE switch, buy GS108PP or GS116PP. This unique combination from NETGEAR Business makes these switches the most adaptive in the market.

The following table describes the Accessory Power Adapters which are sold separately:

Switch Model	Power Adapter Model	Power Adapter Wattage	PoE+ Power Wattage
GS108LP (Comes w/ 67.5W PA)	EPS90W EPS130W)	90W 130W	83W 123W
GS108PP (Comes w/ 130W PA)	EPS90W EPS130W	90W 130W	83W 123W
GS116LP (Comes w/ 90W PA)	EPS90W EPS130W EPS200W	90W 130W 200W	76W 115W 183W
GS116PP (Comes w/ 200W PA)	EPS90W EPS130W EPS200W	90W 130W 200W	76W 115W 183W

Technical Specifications for Accessory Power Adapters

Product	GS108LP	GS108PP	GS116LP	GS116PP
Power Adapter Warranty	2-years			
Technical Support	90 days of free technical support			
ProSUPPORT Contract Option	No			
Auto-applied contracts	No			

NETGEAR®
BUSINESS

Data Sheet | **GS108LP, GS108PP, GS116LP, GS116PP**

8-port and 16-port Gigabit Ethernet Unmanaged PoE/PoE+ Switches

Technical Specifications	GS108LP	GS108PP	GS116LP	GS116PP
Gigabit Ethernet RJ-45 Copper ports (10M/100M/1G) - 1000BASE-T	8		16	
PoE/PoE+ ports	8 PoE+ (60W PoE budget)	8 PoE+ (123W PoE budget)	16 PoE+ (76W PoE budget)	16 PoE+ (183W PoE budget)
Power Supply	External Input 54V 1.25A (67.5W)	External Input 54V 2.4A (130W)	External Input 54V 1.66A (90W)	External Input 54V 3.7A (200W)
Power Supply Supported	External Input 54V 2.4A (130W) Input 54V 1.66A (90W) Input 54V 1.25A (67.5W)		External Input 54V 3.7A (200W) Input 54V 2.4A (130W) Input 54V 1.66A (90W)	
Form Factor	Desktop/Rackmount/Wall-Mount			
Product Specifications				
Gigabit Ports	8		16	
Max MAC entries	4K			
Buffer Size	192KB		1MB	
Energy Efficient Enthernet (IEEE 802.3az complaint)	Yes			
PoE Support				
802.3af	Ports 1-8		Ports 1-16	
802.3at	Ports 1-8		Ports 1-16	
PoE Max Power Per Port	Up to 15.4w for 802.3af and 30W for 802.3at			
Total PoE Power Budget	60W	123W	76W	183W
Forwarding modes	Store-and-forward			
Bandwidth	16Gbps		32Gbps	
Jumbo frame support	Yes			
Acoustic noise (ANSI-S10.12)	0 (fanless)			
Mean Time Between Failures (MTBF)	2,752,476 hours		2,088,514 hours	
Quality of Service (QOS)				
DSCP	Yes			
IEEE 802.1p COS	Yes			
Queue WRR Ratio	1:3:5:7:8:10:12:15 Weighted Fair Queue (WFQ)			
LEDs				
Per port	Speed, Link, Activity, PoE			
Per device	Power Status, PoE Max			

IEEE Network Protocols	GS108LP	GS108PP	GS116LP	GS116PP
• IEEE 802.3 Ethernet • IEEE 802.3u 100BASE-TX • IEEE 802.3ab 1000BASE-T • IEEE 802.1p Class of Service	• IEEE 802.3az Energy Efficient Ethernet (EEE) • IEEE 802.3i 10BASE-T Ethernet • IEEE 802.3x Flow Control			
Physical Specifications				
Dimensions (W x D x H)	236 x 102 x 27 mm 9.29 x 4.02 x 1.06 in		286 x 102 x 27 mm 11.26 x 4.02 x 1.06 in	
Weight	0.6 kg (1.32 lb)		0.88 kg (1.94 lb)	
Power Consumption				
Power Supply	External Input 54V 1.25A (67.5W)	External Input 54V 2.4A (130W)	External Input 54V 1.66A (90W)	External Input 54V 3.7A (200W)
Power Supply Supported	External Input 54V 2.4A (130W) Input 54V 1.66A (90W) Input 54V 1.25A (67.5W)		External Input 54V 3.7A (200W) Input 54V 2.4A (130W) Input 54V 1.66A (90W)	
Max power (worst case, all ports used, line-rate traffic) (Watts)	67.5W	130W	90W	200W
Min power (link-down standby) (Watts)	1.08W		2.68W	
Heat Dissipation (max and min) (BTU/hr)	230.85 BTU/ 3.69 BTU	444.6 BTU/ 3.69 BTU	270.18 BTU/ 9.18 BTU	680.58 BTU/ 9.14 BTU
Energy Efficient Ethernet (EEE) IEEE 802.3az	Yes			
Short cable power reduction	Yes			
Auto power-down	Yes			
Fan(s)	0 (fanless)			
Environmental Specifications				
Operating				
Operating Temperature	0° to 50°C (32° to 122°F)			
Humidity	90% maximum relative humidity (RH), non-condensing			
Altitude	10,000 ft (3,000 m) maximum			
Storage				
Storage Temperature	-20° to 70°C (– 4° to 158°F)			
Humidity (relative)	95% maximum relative humidity (RH), non-condensing			
Altitude	10,000 ft (3,000 m) maximum			

Electromagnetic Emissions and Immunity Certifications	GS108LP	GS108PP	GS116LP	GS116PP
Certifications	47 CFR FCC Part 15, SubpartB, Class A ICES-003:2016 Issue 6, Class A ANSI C63.4:2014 55032:2012+AC:2013, Class A EN 55024:2010 EN 61000-3-2:2014, Class A EN 61000-3-3:2013 AS/NZS CISPR 32:2015, Class A VCCI-CISPR 32:2016, Class A KN 35 CNS 13438 Electromagnetic Compliance Class A			
Safety Certifications				
Certifications	CB. IEC 60950-1:2005(ed.2) + A1:2009 + A2:2013 UL/cUL Listed; UL60950-1, 2nd Ed. 2014; CAN/CSA C22.2 No. 60950-1-07, 2nd Ed. 2014 EN 60950-1: 2006 + A11:2009 + A1:2010 + A12:2011 + A2:2013 AS/NZS 60950.1:2015 KN 32 CNS 14336-1			
Warranty and Support				
	ProSAFE Lifetime Warranty			
	Lifetime Online Technical Support*			
	Lifetime Next-Business-Day (NBD) Replacement			
ProSUPPORT OnCall 24x7 Service Packs**	Category S2 PMB0S12 (1 yr) PMB0S32 (3 yrs) PMB0S52 (5 yrs)			
Package Contents				
All models	NETGEAR Gigabit Ethernet PoE+ Unmanaged Switch Power adapter (localized to the country of sale) Wall installation kit & Rack-mount kit Quick install guide			

Ordering Information	
GS108LP-100NAS	North America and Latin America
GS108LP-100EUS	Europe and United Kingdom
GS108LP-100AJS	Asia Pacific and Australia
GS108PP-100NAS	North America and Latin America
GS108PP-100EUS	Europe and United Kingdom
GS108PP-100AJS	Asia Pacific and Australia
GS116LP-100NAS	North America and Latin America
GS116LP-100EUS	Europe and United Kingdom
GS116LP-100AJS	Asia Pacific and Australia
GS116PP-100NAS	North America and Latin America
GS116PP-100EUS	Europe and United Kingdom
GS116PP-100AJS	Asia Pacific and Australia
Optional Modules and Accessories	
EPS90W	90W External Power Adapter
EPS130W	130W External Power Adapter
EPS200W	200W External Power Adapter

*This product comes with a limited warranty that is valid only if purchased from a NETGEAR authorized reseller, and covers unmodified hardware, fans and internal power supplies – not software or external power supplies, and requires product registration at https://www.netgear.com/business/registration within 90 days of purchase; see https://www.netgear.com/about/warranty for details. Intended for indoor use only.

** The NETGEAR OnCall 24x7 contract provides unlimited phone and email technical support for your networking product. For products purchased prior to 06/2014, also includes next business-day hardware replacement.

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NETGEAR, Inc. 350 E. Plumeria Drive, San Jose, CA 95134-1911 USA, 1-888-NETGEAR (638-4327), E-mail: info@NETGEAR.com, www.NETGEAR.com

D-GS108LP/GS108PP/GS116LP/GS116PP-11Jul19

Chroma-Q®
BRILLIANT SOLUTIONS

Specification Sheet - Version: 1.0
Chroma-Q® Color Force II 72 RGBA
Part No: CHCF272RGBA

DESCRIPTION

The Chroma-Q® Color Force II 72™ is part of the next-generation of solutions which take performance to an all-new level.

Using the very latest fully homogenised optics found in the popular Chroma-Q Color One 100™ product range, the Color Force II fixtures' output is a single, clean and pure beam of light, delivering a superior colour blend with no unsightly colour mixing shadows.

The homogenised optics and improved Chroma-Q technology provide even higher quality saturates and pastels, and a purer white with no skittles – all from a single source.

Factory calibration ensures all Color Force II units are colour matched, so side by side they will be outputting the exact same colour.

The new models also provide more creative control, with twice as many light engines accommodated within the same fixture lengths – providing independently controllable cells every 3 inches.

FEATURES

- Up to 18,600 lumens – at least 50% more output compared to predecessors
- Homogenised output – superior colour blend & no unsightly colour-mixing shadows
- Even more creative control – twice as many light engines
- Theatrical grade dimming
- Practical, user friendly design
- Superior unit-to-unit consistency
- Optional internal LumenRadio
- Chroma-Q's proven LED performance
- Touchscreen user interface

ORDERING INFORMATION

CHCF272RGBA: Chroma-Q Color Force II 72 RGBA
CHCF272RGBALR: Chroma-Q Color Force II 72 RGBA w LumenRadio Installed

ACCESSORIES

CHCFBL72: Chroma-Q Border lens for Color Force 72
CHCFCL72: Chroma-Q Cyc lens for Color Force 72

OVERALL SPECIFICATIONS

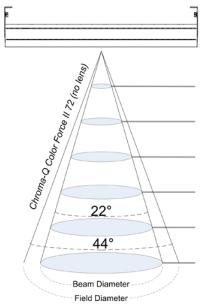
Net Dimensions (without fixings):	Length: 1,759mm / 69.25" Width: 165mm / 6.5" Height: 191mm / 7.5"
Net Weight:	24kg / 53lb
Shipping Dimensions:	Length: 1,855mm / 73" Width: 305mm / 12" Height: 320mm / 12.5"
Shipping Weight:	27 kg / 59 lbs
Power Supply:	Built-in
Power Input Rating:	100-240V AC 50-60Hz 800VA
Power Factor:	0.96 @ 120V AC, 0.99 @ 240V AC
Power Consumption:	800W @ 120V AC, 800W @ 240V AC
Inrush Current:	80A @ 120V AC
Idle Power Consumption:	29W @ 120V AC, 32W @ 240V AC
Typical Power & Current:	Measurements done with all LEDs at maximum intensity. Measurements made at nominal voltage. Allow for a deviation of +/- 10%
Power Connectors In/Out:	Neutrik powerCON TRUE1
Data Connectors In/Out:	Neutrik XLR 5-pin
Max Fixtures in Series:	2 x fixtures @110V, 4 x Fixtures @220V
Control Protocol:	ANSI E1.11 USITT DMX 512-A
Cooling System:	Forced
Operating Temperature:	0°C to 40°C
Construction:	Anodised aluminium extrusion
Colour:	Black
Built-In Hardware:	Quick release lever for tilt adjustment
IP Rating:	IP20
Control Modes:	Strobe Options, RGBA, RGB, HSI, x1, x2, x3, x4, x6, x8, x12, x24, Look Select, Master, Odd / Even, Skip2, Skip3, Skip6
Dimming Curve:	Theatrical
Variable Effects Engine:	Strobe, Strobe on Top, Strobe Random
Hot Lumen Output (Combined):	18,600 lm
Optics:	Fully homogenised lenses
Beam Angle:	22° (approx.)
Beam Distribution:	Asymmetrical direct illumination
CCT:	Adjustable 1,000 - 10,000K
Colour Gamut:	Performance enhanced
CRI:	92
Lamp Life:	L70 at 50,000 hours
Approvals:	CISPR 22 :2006/EN55022 :2006 & CISPR 24 :1997/EN55024 :1998, ICES-003 :2004 & FCC Part 15 Subpart B: 2007, CSA C22. No. 166-M1983:R2008 UL 1573:2003; UL 8750

Chroma-Q®
BRILLIANT SOLUTIONS

Specification Sheet - Version: 1.0
Chroma-Q® Color Force II 72 RGBA
Part No: CHCF272RGBA

PHOTOMETRICS

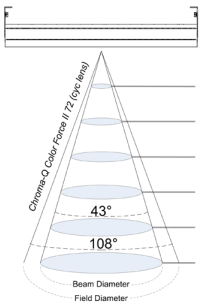
NO LENS



Throw Distance		Beam Spread		Field Spread		Full On	
M	FT	M	FT	M	FT	LUX*	FC*
1	3.28	0.4	1.31	0.8	2.62	85,963	7,986.22
2	6.56	0.8	2.62	1.6	5.25	21,490	1,996.49
3	9.84	1.1	3.61	2.4	7.87	9,551	887.32
4	13.12	1.5	4.92	3.2	10.50	5,372	499.07
5	16.40	1.9	6.23	4.1	13.45	3,438	319.40
6	19.69	2.3	7.55	4.9	16.08	2,387	221.76

** measured at centre of beam*

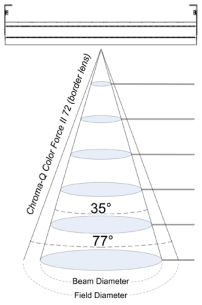
CYC LENS



Throw Distance		Beam Spread		Field Spread		Full On	
M	FT	M	FT	M	FT	LUX*	FC*
1	3.28	0.8	2.62	2.8	9.19	27,357	2,541.55
2	6.56	1.6	5.25	5.6	18.37	6,839	635.36
3	9.84	2.4	7.87	8.3	27.23	3,039	282.33
4	13.12	3.2	10.50	11.1	36.42	1,709	158.77
5	16.40	4.0	13.12	13.9	45.60	1,094	101.64
6	19.69	4.8	15.75	16.7	54.79	759	70.51

** measured at centre of beam*

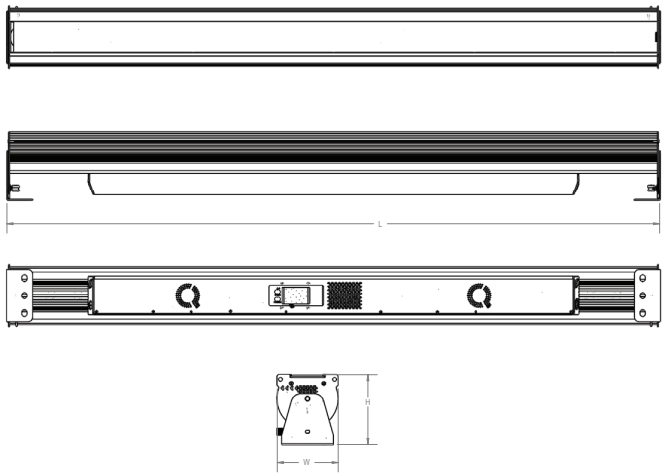
BORDER LENS



Throw Distance		Beam Spread		Field Spread		Full On	
M	FT	M	FT	M	FT	LUX*	FC*
1	3.28	0.6	1.97	1.6	5.25	28,759	2,671.80
2	6.56	1.3	4.27	3.2	10.50	7,189	667.88
3	9.84	1.9	6.23	4.8	15.75	3,195	296.83
4	13.12	2.5	8.20	6.4	21.00	1,797	166.95
5	16.40	3.2	10.50	8.0	26.25	1,150	106.84
6	19.69	3.8	12.47	9.6	31.50	798	74.14

** measured at centre of beam*

DIMENSIONS



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Because we constantly aim to improve our products, we reserve the right to amend or alter at any time and without prior notice, the specifications of any product. E&OE.

Maverick Force S Profile

FEATURES

- Fully featured, compact and lightweight 350 W LED yoke profile fixture including CMY color mixing, a color wheel, zoom optics, framing shutters with rotation, and two gobo wheels, one rotating, and one static
- 16-bit dimming of master dimmer for smooth control of fades
- Variable CMY color mixing system to create a wide pallet of colors
- DMX, WDMX, sACN, and Art-Net for full flexibility of control options
- RDM Enabled for remote addressing and trouble shooting
- 4.5° to 41.6° zoom range for variable beam sizes
- Iris, 5-facet prism, and frost for beam control
- 4 blade framing shutters with dual axis movement, full wipe, and 120 degree total module rotation
- True 1 compatible power input
- Three setup menu presets and preset sync for cross loading to multiple like fixtures for easy shop setup
- USB slot for software uploads
- Battery backup display with auto-rotate depending on fixture orientation

Construction / Physical

- Dimensions: 15.5 x 9.8 x 25.0 in (361 x 238 x 639 mm)
- Weight: 52.9 lb (24 kg)
- Exterior Color: Black
- Housing Material: High-impact flame-retardant polymer

Connections

- Power Connection: Edison plug to Seetronic Powerkon IP65
- Power Input: Seetronic Powerkon IP65
- Data Connectors: 3-pin and 5-pin XLR, Amphenol XLR Net RJ45 Connectors in/out
- Cable Length (power): 5 ft (1.5 m)

Control

SPECIFICATIONS

Optical

- Light Source: 1 LED (CW) 350 W, (2.7 A), 8400K, 50,000 hours life expectancy
- Color Temperature (at full): 6937K
- CRI: 69
- CRI with CRI filter: 89.6
- Front Lens Dia: 119 mm
- Beam Angle: 4.5° to 35.9°
- Field Angle: 5.2° to 40.5°
- Zoom Angle: 5.8° to 41.6°
- Lumens - Source: 20,000
- Lumens – Output: 14,669
- Illuminance (4.5°) 51,865 lux @ 5 m
- Illuminance (41.6°) 1,648 lux @ 5 m
- Selectable PWM: 600 Hz, 1200 Hz, 4000 Hz, 6000 Hz, 15000 Hz

Dynamic Effects

- Pan and Tilt: 540°/270°
- Pan and Tilt Ranges: 540°, 360°, 180° pan/270°, 180°, 90° tilt
- Colors: 7 + white, split colors, continuous scroll at variable speeds
- Colors: CMY Wheels
- Gobos (1): 7 + open (glass), rotating, interchangeable, indexing, slot-n-lock, continuous scroll at variable speeds
- Gobos (2): 9 + open (metal), continuous scroll at variable speeds
- Gobo Size (1): Gobo Wheel 1 (rotating): 25.5 mm (outside), 17 mm (image), 1.1 mm (max. thickness)
- Framing Shutters: 4 blades, each with dual axis movement.
- Framing Shutter rotation: 120°
- Dimmer: Electronic
- Shutter/Strobe: Electronic
- Zoom: Motorized
- Focus: Motorized
- Frost: Motorized
- Iris: Motorized
- Prism: 5 Facets, motorized, rotating
- Strobe Rate: 0 to 20 Hz
- Move-in-Black: Yes
- Dim Curves: 4

Optional Accessories

- Professional Clamps: CTC-50HC, CTC-50HCN
- Safety Cable: SC-07
- DMX cables
- IP Rated Seetronic® Powerkon Extensions
- Flight Case
- UPLOAD_08 software uploader

- Control Protocol: Art-Net, sACN, DMX, RDM, W-DMX
- DMX Channels: 31 or 47
- Art-Net Channels: 31 or 47
- Modes/Personalities: 2 personalities (31, 47)

Electrical

- Input Voltage: 100 to 240 VAC, 50/60 Hz (auto-ranging)
- Power Linking: 2 units @ 100 V; 2 units @ 120 V; 5 units @ 208 V; 4 units @ 230 V; 5 units @ 240 V
- Power and Current: 580 W, 5.82 A @ 100 V, 60 Hz [9.0 A in-rush]
- Power and Current: 563 W, 4.75 A @ 120 V, 60 Hz [8.0 A in-rush]
- Power and Current: 547 W, 2.69 A @ 208 V, 60 Hz [15.0 A in-rush]
- Power and Current: 546 W, 2.44 A @ 230 V, 50 Hz [17.0 A in-rush]
- Power and Current: 543 W, 2.33 A @ 240 V, 50 Hz [16.0 A in-rush]
- Power and Current (resting): 86 W, 0.929 A @ 100 V, 60 Hz
- Power and Current (resting): 85 W, 0.757 A @ 120 V, 60 Hz
- Power and Current (resting): 82 W, 0.449 A @ 208 V, 60 Hz
- Power and Current (resting): 81 W, 0.412 A @ 230 V, 50 Hz
- Power and Current (resting): 79 W, 0.404 A @ 240 V, 50 Hz

Certifications / Qualifications

- CE, MET, FCC
- IP Rating: IP20, dry location
- Noise Level (ambient): 37.5 dB level @ 1 m
- Noise Level (Static - Full): 47.1 dB level @ 1 m
- Noise Level (Static - Eco): 37.9 dB level @ 1 m
- Noise Level (Static - Auto): 38.1 dB level @ 1 m
- Noise Level (Max): 45.9 dB level @ 1 m
- Temperature (startup): -4 °F to 113 °F (-20 °C to 45 °C)
- Temperature (operating): -22 °F to 113 °F (-30 °C to 45 °C)

What's Included

- Maverick Force S Profile
- Seetronic Powerkon IP65 power cord
- 2 Omega brackets with mounting hardware
- Quick Reference Guide

ETC

ColorSource Spot

ColorSource Series

Type(s)

Project

Date

Notes

GENERAL INFORMATION

The ETC ColorSource Spot brings together the affordability of a four-color light engine with the build-quality and support of an ETC product. Using a unique mix of red, green, blue and lime LED emitters, the ColorSource Spot offers an amazing range of color and depth, unlike other low-cost LED fixtures. Because it utilizes standard ETC optics, adapters and accessories, it is a versatile solution for any lighting need.

APPLICATIONS

- Theatres and performance spaces
- Houses of worship
- Universities and schools
- Hospitality
- Retail
- Exhibition centers
- Meeting rooms
- Clubs
- Cafetoriums

PRODUCT FEATURES

- ETC's RGB-L array (red, green, blue and lime)
  - Also available in Deep Blue, which replaces the blue LEDs with indigo for rich, saturated blues and magentas
- Simple user interface with seven-segment display
- powerCON® in and thru
- DMX/RDM in and thru (5-pin XLR)
- LED droop compensation
- Optically calibrated
- Tour-ready, aluminum housing
- Combine with available adapters to transform your fixture into a fully functional Fresnel or CYC light

ORDERING INFORMATION

ColorSource Spot Light Engine with Shutter Barrel

(For use with fixed-field lens tubes only)

MODEL	DESCRIPTION	ETL PART NUMBER	CE PART NUMBER	
CSSPOTS	ColorSource Spot with shutter barrel, black	7413A1001	7413A1201	
CSSPOTDBS	ColorSource Spot Deep Blue with shutter barrel, black	7413A1041	7413A1241	

ColorSource Spot Light Engine Body

(For use with zoom lens tubes and adapters and for retrofit of existing fixtures)

MODEL	DESCRIPTION	ETL PART NUMBER	CE PART NUMBER	
CSSPOT	ColorSource Spot, body only, black	7413A1000	7413A1200	
CSSPOTDB	ColorSource Spot Deep Blue, body only, black	7413A1040	7413A1240	

Color options: -1 = white, -5 = silver gray, -8 = custom colors.
Fixture ships with a soft-focus diffuser in a gobo holder, a c-clamp and a 1.5 m powerCON power-input cable with a connector of choice. See page six for connector options.
Please note: Lens tubes to be ordered separately. C-clamps included in NA regions only.

PRODUCT SPECIFICATIONS

Source

LED details	60 Lumileds LUXEON® Rebel LED
Max lumens	6,932
Lumens per watt	42.4
L70 rating (hours to 70% output)*	54,000 hours (both variants)

Color

Colors used	Spot: Red, green, blue, lime Spot DB: Red, green, indigo, lime
Color temperature range	Color mixing
Calibrated array	Yes
Red shift	No

Optical

Beam angle range	Swappable lens tubes between 5-90 degrees
Gate size	79-24 mm
Aperture size	6.25–14 in (depending on lens tube)
Pattern projection	Yes
Pattern size	A or B
Camera flicker control/Hz range	1,200 Hz (default) and 25,000 Hz (via RDM)
Notes	Can be used with LED CYC and Fresnel adapters

Control

Input method	DMX512 via 5-pin XLR connector
Protocols	DMX512/RDM
Modes (footprint)	4 modes, see page 7
RDM configuration	Yes
UI type	Seven-segment, three-button interface
Local control	Yes
Onboard presets	Yes (12)
Onboard sequences	Yes (5)
Onboard effects	No
FixtureLink	Yes
Notes	15-bit virtual dimming engine

Electrical

Voltage range	100–240 VAC 50/60 Hz
Input method	powerCON power in and thru
Inrush	28 A at 120 V (First half-cycle) 46 A at 240 V (First half-cycle)
Fixtures per circuit*	9 fixtures (15 A power thru connector) or 10 fixtures (R20 module or similar)
Wattage typical/standby	168 W/1.19 W at 100 V 166 W/2.07 W at 120 V 166 W / 1.5 W at 240 V
Current draw typical/ standby	1.69 A/0.05 A at 100 V 1.39 A/0.05 A at 120 V 0.72 A/0.05 A at 240 V

*Note: All measurements are for 120 V, 60 Hz. Results may vary in different regions.

Thermal

Ambient operating temp	0°–40° C (32°–104° F)
Fan (controllable)	Yes (no)
Droop compensation	Yes
dB range	21.2 dBA average at 1 m
BTUs/hour	504.78

Physical

Materials	Die-cast, all metal housing
Color options	Black, white, silver, or custom color
Mounting options	Yoke
IP rating	IP20
Weight	7.7 kg (17 lb) (without lens)
Included accessories	Hanging yoke, 1.5 m power cable, soft-focus diffuser in an A-size gobo holder
Notes	See page 6 for power cable options

Warranty

Fixture	5 years
LED array	10 years

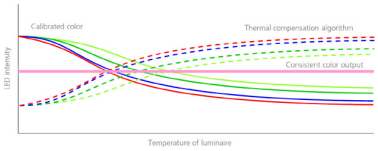
Regulatory and Compliance

Approved regulatory standards	cETLus Listed Conforms to UL 1573 Listed Conforms to UL 924 Listed Certified to CSA C22.2 No. 166 Listed Certified to CSA C22.2 No. 141 Listed CE Compliant EAC Compliant

***Note about LED luminaire lifetime:**
ETC utilizes a nationally recognized third-party lab for luminaire testing according to IES LM-84. See etcconnect.com/About/News/ETC-Fixture-Ratings-and-Warranties-Extended.aspx.

All LED sources experience some lessening of light output and some color shift over time. LED output will vary with thermal conditions. In individual situations, LEDs will be used for different durations and levels. This can eventually lead to minor alterations in color performance, necessitating slight adjustments to presets, cues or programs.

PRODUCT FEATURES



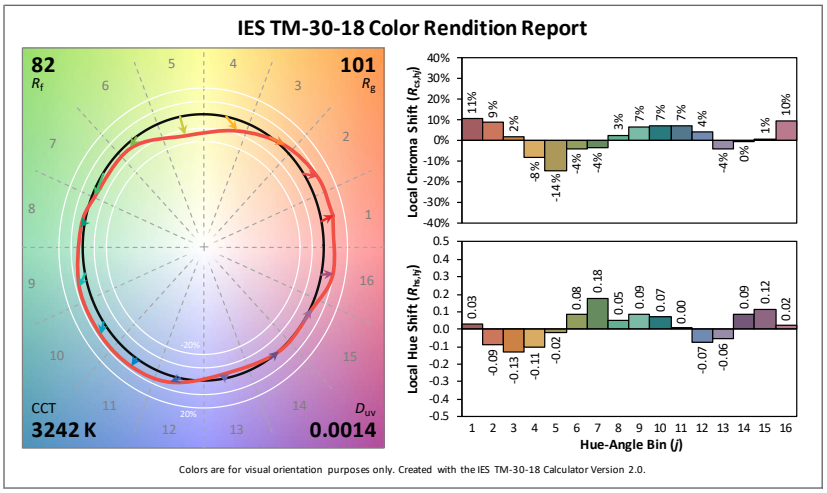
LED DROOP COMPENSATION
ETC's custom software adjusts for the changes that naturally occur as LEDs heat up and cool down so you never have to worry about color shift.

RGB-L ARRAY
The custom four-color blend of LEDs incorporates a hint of lime to increase spectral reach and color depth.

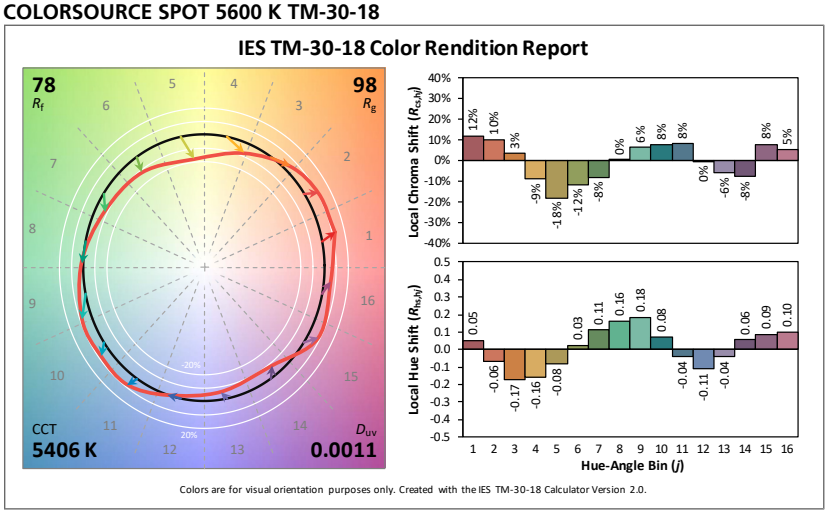
SIMPLE USER INTERFACE
The simple seven-segment display and navigation buttons enable quick setup and recall of built-in presets.

COLOR METRIC INFORMATION

COLORSOURCE SPOT 3200 K TM-30-18

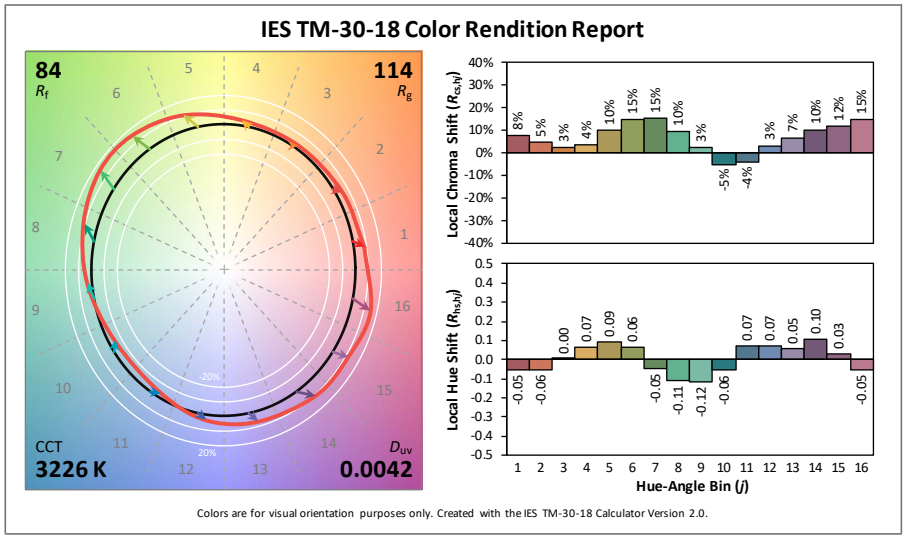


COLORSOURCE SPOT 5600 K TM-30-18

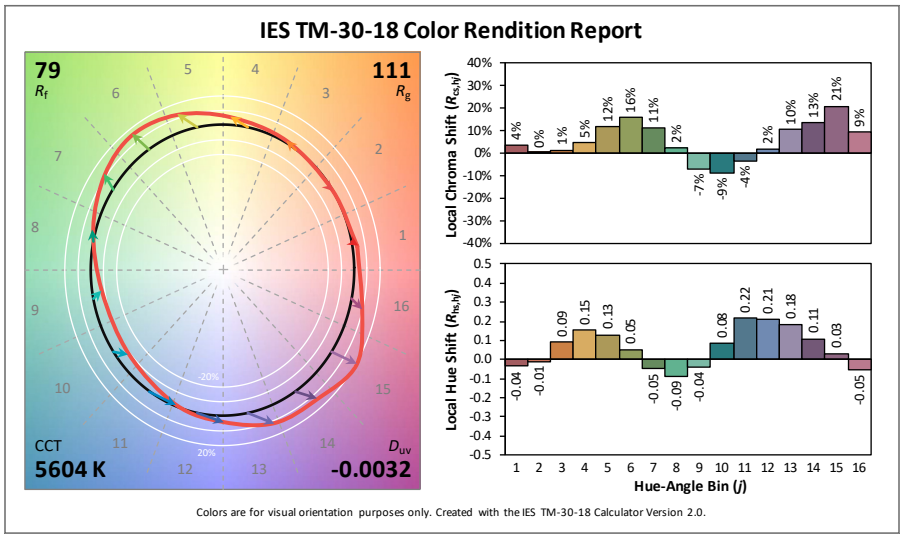


COLOR METRIC INFORMATION

COLORSOURCE SPOT DEEP BLUE 3200 K TM-30-18

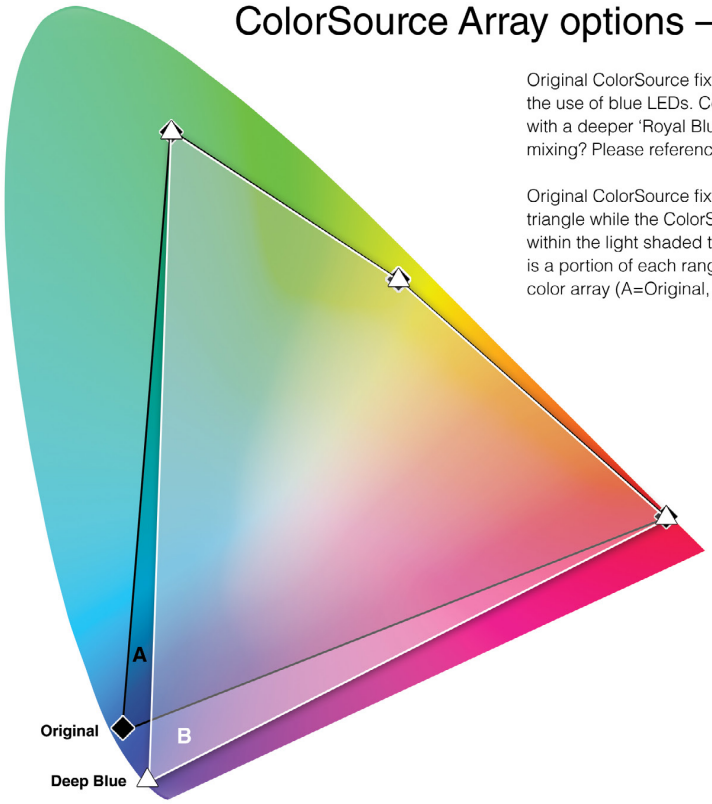


COLORSOURCE SPOT DEEP BLUE 5600 K TM-30-18



COLOR METRIC INFORMATION

ColorSource Array options – Original vs. Deep Blue



Original ColorSource fixtures use an RGB-L array where the 'B' represents the use of blue LEDs. ColorSource Deep Blue replaces those blue LEDs with a deeper 'Royal Blue' (indigo) LED. How does this impact your color mixing? Please reference the color chart.

Original ColorSource fixtures can reach any color within the dark shaded triangle while the ColorSource Deep Blue fixtures can reach any color within the light shaded triangle. While much of these areas overlap, there is a portion of each range that can only be reached by the respective color array (A=Original, B=Deep Blue).

Common gels found in original ColorSource
Roscolux 095, 075, 076
Lee 363, 119, 721, 722, 132, 141, 183, 172, 325

Common gels found in ColorSource Deep Blue
Roscolux 384, 385, 382, 059, 358, 347, 049, 349, 046, 124, 027, 120
Lee 126, 049, 798, 707, 181, 071, 120, 716

PHOTOMETRY INFORMATION

Degrees and Lumens

DEGREE	MAXIMUM OUTPUT FIELD LUMENS		DISTANCE TO ACHIEVE 50 FC	
	RGB-L	Deep Blue	RGBL	Deep Blue
5	5,020	4,682	89.0 ft / 27.2 m	89.0 ft / 27.2 m
10	5,429	5,063	70.0 ft / 21.4 m	69.5 ft / 21.2 m
14	6,173	5,757	49.0 ft / 15.0 m	49.0 ft / 15.0 m
19	5,426	5,061	40.0 ft / 12.2 m	40.0 ft / 12.2 m
19 EDLT	6,155	5,740	39.0 ft / 11.9 m	38.7 ft / 11.8 m
26	5,543	5,169	32.5 ft / 9.9 m	32.5 ft / 9.9 m
26 EDLT	6,932	6,494	32.3 ft / 9.9 m	32.3 ft / 9.9 m
36	6,680	6,230	23.8 ft / 7.3 m	23.6 ft / 7.2 m
36 EDLT	6,919	6,453	24.0 ft / 7.3 m	24.0 ft / 7.3 m
50	6,670	6,221	18.0 ft / 5.5 m	17.8 ft / 5.4 m
50 EDLT	7,074	6,598	17.0 ft / 5.2 m	16.9 ft / 5.2 m
70	7,474	6,971	13.4 ft / 4.1 m	13.4 ft / 4.1 m
90	6,952	6,483	11.8 ft / 3.6 m	11.7 ft / 3.6 m
15-30	6,464	6,029	33.0 ft / 10.1 m	33.0 ft / 10.1 m
25-50	6,974	6,505	23.2 ft / 7.1 m	23.2 ft / 7.1 m

See *ColorSource Spot Photometry Guide,* available at etcconnect.com for full photometry information.

ADDITIONAL ORDERING INFORMATION

Fixture Accessories

MODEL	DESCRIPTION	PART NUMBER	
400CC	C-clamp (not included with CE fixtures)	7060A2009 (not CE)	
400SC	Safety cable	7060A1022	
400PH-A	Pattern holder (A size) (included)	7060A1013	
400PH-B	Pattern holder (B size)	7060A1014	
400PH-G	Glass pattern holder	7060A1019	
400RS	Drop-In iris	7060A1012	
400CF	Color frame (6.25 in)	7060A3043	
407CF	Square color frame (7.50 in)	7061A3007	
400DN	Donut	7060A1015	
400TH	Top hat, 6.25 in/159 mm	PSF1021	
400PTH6	Top hat, 7.5 in/191 mm	PSF1023	
410TH	Top hat, 12 in/305 mm (for 10° lens tubes)	PSF1024	
405TH	Top hat, 14 in/356 mm (for 5° lens tubes)	PSF1025	
400HH	Half hat	PSF10216	
DPSJ-X	25 ft powerCON-to-Edison input power cable with inline switch	7400B7030 (not CE)	

Power Input Cables

Use information below to order 5 ft power input leads with factory-fitted connectors. CE fixtures ship with powerCON to bare end cables in the box.

MODEL	DESCRIPTION	PART NUMBER	
DPA-A	5 ft powerCON to parallel blade U-ground (Edison) connector	7410B7037-A (not CE)	
DPA-B	5 ft powerCON to 20 A two-pin and ground (stage pin) connector	7410B7037-B (not CE)	
DPA-C	5 ft powerCON to grounded 20 A twistlock connector	7410B7037-C (not CE)	
DPA-X	5 ft powerCON to bare-end power input lead	7410B7037-X (not CE)	

Power Thru Jumpers

Note: Power thru jumpers connect to a fixture's output (thru) connector to provide a link to successive fixtures.

MODEL	DESCRIPTION	PART NUMBER	
DPJ-5	5 ft powerCON-to-powerCON fixture-to-fixture jumper	7410B7020	
DPJ-10	10 ft powerCON-to-powerCON fixture-to-fixture jumper	7410B7010	

Diffusers

The Soft Focus Diffuser fits into a standard A-size pattern holder and delivers beautiful, homogenized light. You can also use the Soft Focus Diffuser with patterns for dappled and soft-edge projections.
The Smooth Wash Diffuser is used when extra-smooth blending of multiple ColorSource Spot luminaires is required. The smooth wash diffuser is placed into the gel-frame slot of the lens tube.

MODEL	DESCRIPTION	PART NUMBER	
S4LED-SFD	Soft Focus Diffuser (included)	7460A4019	
S4LED-SWD6	Smooth Wash Diffuser for 6.25 in gel frame slots	7460K1001	
S4LED-SWD7	Smooth Wash Diffuser for 7.5 in gel frame slots	7460K1002	
S4LED-SWD12	Smooth Wash Diffuser for 10° lens tubes	7460K1003	
S4LED-SWD14	Smooth Wash Diffuser for 5° lens tubes	7460K1004	

RJ45 to XLR Adapter Cables

MODEL	DESCRIPTION	PART NUMBER	
W6538	RJ45 to female 5-pin XLR adapter (6 ft)	W6538	
W6539	RJ45 to male 5-pin XLR adapter (6 ft)	W6539	

PREFERRED LENSING OPTIONS (Lenses sold separately)

Fixed Beam Lenses

MODEL	DESCRIPTION	PART NUMBER	
LED50LT	LED-specific 50° EDLT lens	7460A2008	
LED50LT-1	LED-specific 50° EDLT (white) lens	7460A2008-1	
436EDLT	36° EDLT lens	7060A2048	
436EDLT-1	36° EDLT (white) lens	7060A2048-1	
426EDLT	26° EDLT lens	7060A2047	
426EDLT-1	26° EDLT (white) lens	7060A2047-1	
419EDLT	19° EDLT lens	7060A2046	
419EDLT-1	19° EDLT (white) lens	7060A2046-1	
490LT	90° lens	7060A2052-K	
490LT-1	90° (white) lens	7060A2052-1K	
470LT	70° lens	7060A2051-K	
470LT-1	70° (white) lens	7060A2051-1K	
414LT	14° lens	7060A2050-K	
414LT-1	14° (white) lens	7060A2050-1K	
410LT	10° lens	7060A2001-K	
410LT-1	10° (white) lens	7060A2001-1K	
405LT	5° lens	7060A2000-K	
405LT-1	5° (white) lens	7060A2000-1K	

Zoom Lens Assemblies

Use with light-engine body models.

MODEL	DESCRIPTION	PART NUMBER	
41530LT	Source Four 15°–30° Zoom lens	7060A2030-K	
42550LT	Source Four 25°–50° Zoom lens	7060A2032-K	

LED Adapters

MODEL	DESCRIPTION	PART NUMBER	
S4LEDCYC	LED CYC adapter	7460A2011	
S4LEDFRES	LED Fresnel adapter	7460A2016	

CONTROL

DMX Input Channel Profiles

DMX PROFILE	DMX CHANNELS	CHANNEL ASSIGNMENTS	NOTES
5ch (Default)	5	1-Intensity 2-Red 3-Green 4-Blue 5-Strobe	Lime is mixed automatically.
RGB	3	1-Red 2-Green 3-Blue	
1ch	1	1-Intensity	This mode controls the intensity of Preset 1.
Dir	6	1-Intensity 2-Red 3-Green 4-Blue/Indigo* 5-Lime 6-Strobe	*Original ColorSource Spot fixture uses blue in channel 4; Deep Blue ColorSource Spot fixture uses indigo in channel 4.

PHYSICAL

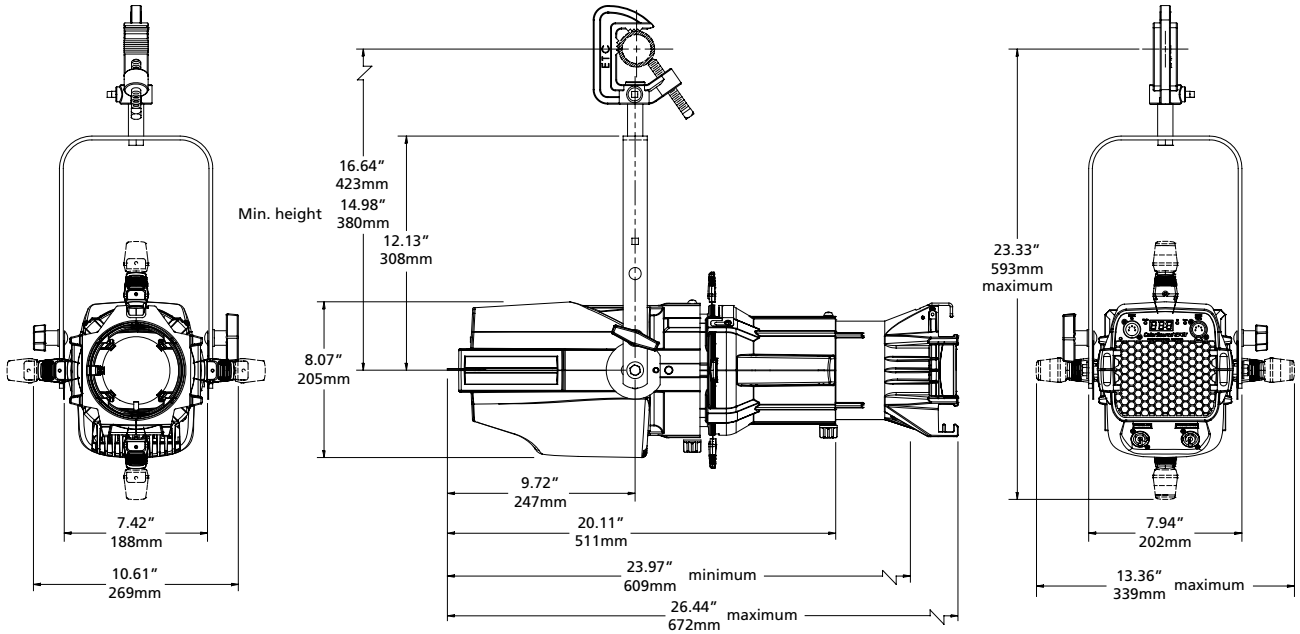
ColorSource Spot Weights

	WEIGHT*		SHIPPING WEIGHT	
	lb	kg	lb	kg
With Barrel	17.0	7.7	22.0	10.0
Without Barrel	13.0	5.9	16.3	7.4

* Does not include mounting hardware or lens tube

ColorSource Spot Dimensions

	HEIGHT		WIDTH		DEPTH	
	in	mm	in	mm	in	mm
ColorSource Spot	23.33	593	13.36	339	26.44	672



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etcconnect.com

ETC

ColorSource PAR

ColorSource Series

Type(s)

Project

Date

Notes

GENERAL INFORMATION

ColorSource PAR offers a quality of build and light that has never been seen in an affordable wash fixture. Using ETC's RGB-L color system, the ColorSource PAR provides a rich, bright light unlike any other LED wash light in its class.

APPLICATIONS

- Theatres and performance spaces
- Houses of worship
- Universities and schools
- Hospitality
- Retail
- Exhibition centers
- Meeting rooms
- Clubs
- Cafetoriums

PRODUCT FEATURES

- Three array options:
  - Original RGB-L (Red/Green/Blue/Lime)
  - Deep Blue RGI-L (Red/Green/Indigo/Lime)
  - Pearl (Warm and Cool White), see separate datasheet
- Homogenized optics
- Simple user interface with seven-segment display
- powerCON® in and thru
- 5-pin XLR
- LED droop compensation
- Optically calibrated
- Tour-ready, aluminum housing

ORDERING INFORMATION

ColorSource PAR

MODEL	DESCRIPTION	ETL PART NUMBER	CE PART NUMBER	
CSPAR	ColorSource PAR, black	7412A1005	7412A1205	
CSPARDB	ColorSource PAR Deep Blue, black	7412A1008	7412A1208	

Note: ColorSource PAR luminaires ship with a hanging yoke and a power cable with connector of choice. See page 6 for connector options. C-clamps are not included. For additional color options, please add the following: -1 for white, -5 for silver gray or -8 for custom color.

PRODUCT SPECIFICATIONS

Source

LED details	40 Lumileds LUXEON® Z LED
Max lumens	PAR: 3,039 PAR DB: 2,429
Lumens per watt	PAR: 28.1 PAR DB: 27.6
L70 rating (hours to 70% output)*	55,000 hours

Color

Colors used	PAR: red, green, blue, lime PAR Deep Blue: red, green, indigo, lime
Color temperature range	Color mixing
Calibrated array	Yes
Red shift	No

Optical

Beam angle range	14.5° (secondary lenses available for multiple beam-spread options)
Gate size	N/A
Aperture size	7.5 in / 190 mm
Pattern projection	No
Pattern size	N/A
Camera flicker control/Hz range	1,200 Hz (default) 25,000 Hz (via RDM)

Control

Input method	DMX512 via 5-pin XLR connector
Protocols	DMX512/RDM
Modes (footprint)	4 modes, see page 7
RDM configuration	Yes
UI type	Seven-segment, three-button interface
Local control	Yes
Onboard presets	Yes (12)
Onboard sequences	Yes (5)
Onboard effects	No
Fixture-to-fixture control	Yes
Notes	15-bit virtual dimming engine

***Note about LED luminaire lifetime:** ETC utilizes a nationally recognized third-party lab for luminaire testing according to IES LM-84. See etcconnect.com/About/News/ETC-Fixture-Ratings-and-Warranties-Extended.aspx.

All LED sources experience some lessening of light output and some color shift over time. LED output will vary with thermal conditions. In individual situations, LEDs will be used for different durations and levels. This can eventually lead to minor alterations in color performance, necessitating slight adjustments to presets, cues or programs.

Electrical

Voltage range	100–240 VAC 50/60 Hz
Input method	powerCON power in and thru
Inrush	35 A at 120 V (First half-cycle) 49 A at 240 V (First half-cycle)
Fixtures per circuit*	9 (15 A power thru connector) 10 (R20 module or similar)
Wattage typical	90 W at 120 V 89 W at 240 V
Current draw	0.75 A at 120 V 0.40 A at 240 V

*Note: All measurements are for 120 V, 60 Hz. Results may vary in different regions.

Thermal

Ambient operating temp	0°–40° C (32°–104° F)
Fan (controllable)	Yes (No)
Droop compensation	Yes
dB range	24.8 dBA average at 1 m
BTUs/hour (RGB-L / DB)	307 / 303

Physical

Materials	Die-cast, all metal housing
Color options	Black, white, silver, or custom color
Mounting options	Yoke, floor stand yoke (available as an accessory)
IP rating	IP20
Weight	3.77 kg (8.3 lb)
Included accessories	Hanging yoke, power cable
User interface	Seven-segment, three-button interface

Warranty

Fixture	5 years
LED array	10 years

Regulatory and Compliance

Approved regulatory standards	cETLus Listed Conforms to UL 1573 Listed Conforms to UL 924 Listed Certified to CSA C22.2 No. 166 Listed Certified to CSA C22.2 No. 141 Listed CE Compliant EAC Compliant

PRODUCT FEATURES

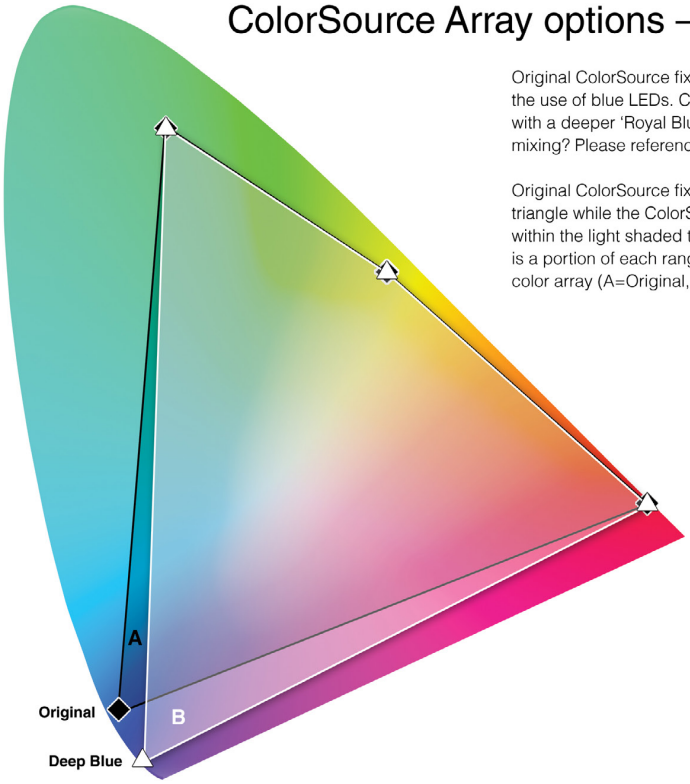
HOMOGENIZED OPTICS
The optics consist of a balanced mix of red, green, blue, and lime LEDs to give the best and brightest color mix possible.

RGB-L ARRAY
The custom four-color blend of LEDs incorporates a hint of lime to increase spectral reach and color depth.

SIMPLE USER INTERFACE
The simple seven-segment display and navigation buttons enable quick setup and recall of built-in presets.

COLOR METRIC INFORMATION

ColorSource Array options – Original vs. Deep Blue



Original ColorSource fixtures use an RGB-L array where the 'B' represents the use of blue LEDs. ColorSource Deep Blue replaces those blue LEDs with a deeper 'Royal Blue' (indigo) LED. How does this impact your color mixing? Please reference the color chart.

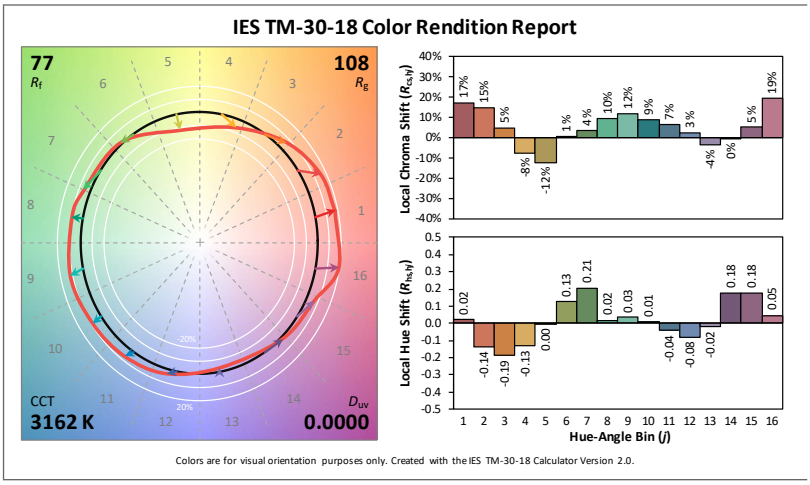
Original ColorSource fixtures can reach any color within the dark shaded triangle while the ColorSource Deep Blue fixtures can reach any color within the light shaded triangle. While much of these areas overlap, there is a portion of each range that can only be reached by the respective color array (A=Original, B=Deep Blue).

Common gels found in original ColorSource
Roscolux 095, 075, 076
Lee 363, 119, 721, 722, 132, 141, 183, 172, 325

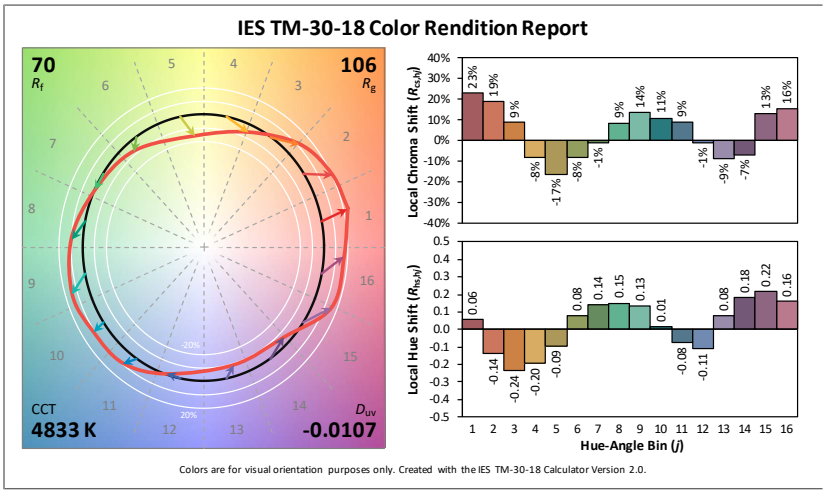
Common gels found in ColorSource Deep Blue
Roscolux 384, 385, 382, 059, 358, 347, 049, 349, 046, 124, 027, 120
Lee 126, 049, 798, 707, 181, 071, 120, 716

COLOR METRIC INFORMATION

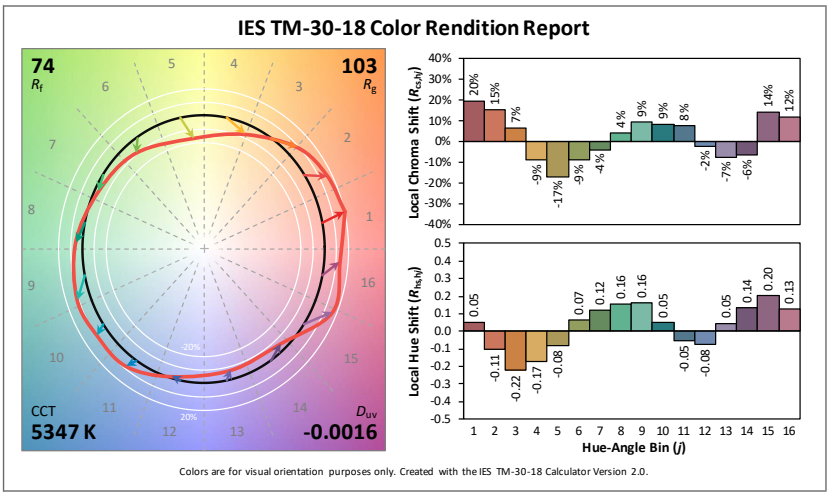
COLORSOURCE PAR 3200 K TM-30-18



COLORSOURCE PAR 4500 K TM-30-18



COLORSOURCE PAR 5600 K TM-30-18

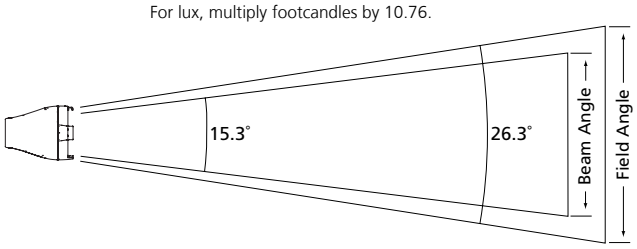


PHOTOMETRICS

ColorSource PAR

Mode	Degree	Candela	Field Lumens	Beam Lumens	Lumens Per Watt
Full ON - Direct	15.3	53,456	3,039	1,905	28.1
3200 K / RGB	15.3	41,323	2,380	1,494	32.9
5600 K / RGB	51,389	2,941	1,831	1,831	28.9

Metric conversions: For meters, multiply feet by 0.3048.
For lux, multiply footcandles by 10.76.



Throw Distance (d)	10 ft 3.0 m	15 ft 4.6 m	20 ft 6.1 m	25 ft 7.6 m	226.1 ft 68.9 m
Field Diameter	4.7 ft 1.4 m	7.0 ft 2.1 m	9.3 ft 2.8 m	11.7 ft 3.6 m	–
Illuminance (fc)	511	227	128	82	1
Illuminance (lux)	5,502	2,445	1,375	880	10.76

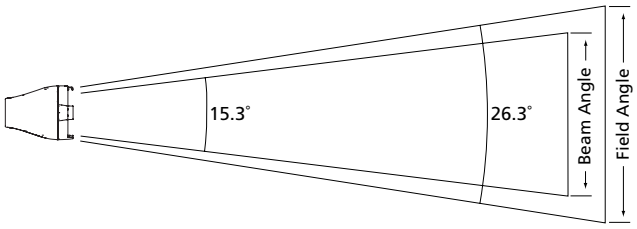
To determine center beam illumination in footcandles at any throw distance, divide candela by the throw distance squared.

For field diameter at any distance, multiply distance by 0.467.
For beam diameter at any distance, multiply by 0.269.

ColorSource PAR Deep Blue

Mode	Degree	Candela	Field Lumens	Beam Lumens	Lumens Per Watt
Full ON - Direct	15.3	50,156	2,978	1,874	27.6
3200 K / RGB	15.3	46,653	2,772	1,738	38.3
5600 K / RGB	15.3	46,273	2,723	1,706	26.8

Metric conversions: For meters, multiply feet by 0.3048.
For lux, multiply footcandles by 10.76.



Throw Distance (d)	10 ft 3.0 m	15 ft 4.6 m	20 ft 6.1 m	25 ft 7.6 m	226.0 ft 68.9 m
Field Diameter	4.7 ft 1.4 m	7.0 ft 2.1 m	9.3 ft 2.8 m	11.7 ft 3.6 m	–
Illuminance (fc)	511	227	128	82	1
Illuminance (lux)	5,500	2,444	1,375	880	10.76

To determine center beam illumination in footcandles at any throw distance, divide candela by the throw distance squared.

For field diameter at any distance, multiply distance by 0.467.
For beam diameter at any distance, multiply by 0.269.

LED Wash Lenses

Nominal									
D40	**No Lens**	**Very Narrow**	**Narrow**	**Medium**	**Wide**	**Extra Wide**	**Narrow Oval**	**Medium Oval**	**Wide Oval**
Lustr+	17	21	27	42	68	100	21x37	25x60	30x82
Vivid	18	22	27	42	69	104	20x37	25x60	30x82
Studio HD	18	23	28	42	69	104	21x29	25x61	30x82
Studio D	22	25	30	43	70	105	24x39	28x62	32x80
Studio T	23	25	30	43	70	105	24x39	28x62	32x80
ColorSource PAR	26	28	32	50	77	95	29x44	32x61	32x60

All values are in degrees.

ADDITIONAL ORDERING INFORMATION

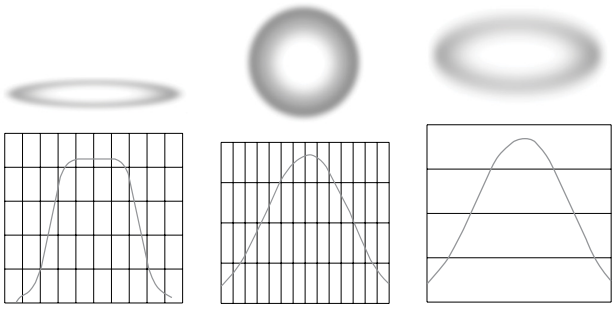
Secondary Lens Options

The following lenses are cut for ColorSource luminaires and create round, linear or oblong field patterns as described below. These lenses are not sized for use in Selador Classic fixtures. Linear lenses may be combined to create desired field size.

MODEL	DESCRIPTION	PART NUMBER	
Linear Field	Rigid polymer construction; does not require a media frame		
SELLN-7.5	7.5 in / 190 mm narrow lens	7410K1018	
SELLM-7.5	7.5 in / 190 mm medium lens	7410K1019	
SELLW-7.5	7.5 in / 190 mm wide lens	7410K1020	
SELLEW-7.5	7.5 in / 190 mm extra wide lens	7410K1021	
Round Field			
SELRN-7.5	7.5 in / 190 mm narrow lens	7410K1011	
SELRM-7.5	7.5 in / 190 mm medium lens	7410K1012	
SELRW-7.5	7.5 in / 190 mm wide lens	7410K1013	
SELRXW-7.5	7.5 in / 190 mm extra wide lens	7410K1039	
Oblong Field			
SELON-7.5	7.5 in / 190 mm narrow lens	7410K1014	
SELOM-7.5	7.5 in / 190 mm medium lens	7410K1015	
SELOW-7.5	7.5 in / 190 mm wide lens	7410K1016	

[Lenses compared to Source Four PAR EA]

Typical Lens Field Profiles



Narrow Linear Round Oblong

ADDITIONAL ORDERING INFORMATION

Power Input Cables

Use information below to order 5 ft power input leads with factory-fitted connectors. CE Fixtures ship with powerCON to bare end cables in the box.

MODEL	DESCRIPTION	PART NUMBER (NOT CE)	
DPA-A	5 ft / 1.5 m powerCON to parallel blade U-ground (Edison) connector	7410B7037-A	
DPA-B	5 ft / 1.5 m powerCON to 20 A two-pin and ground (stage-pin) connector	7410B7037-B	
DPA-C	5 ft / 1.5 m powerCON to grounded 20 A twistlock connector	7410B7037-C	
DPA-X	5 ft / 1.5 m powerCON to bare-end power input lead	7410B7037-X	

Power-Thru Jumpers

Note: Power-thru jumpers connect to luminaire's output (thru) connector to provide link to successive luminaires.

MODEL	DESCRIPTION	PART NUMBER	
DPJ-5	5 ft powerCON to powerCON fixture-to-fixture jumper	7410B7020	
DPJ-10	10 ft / 3.0 m powerCON to powerCON fixture-to-fixture jumper	7410B7010	

Luminaire Accessories

MODEL	DESCRIPTION	PART NUMBER	
CSPARFSY	Yoke with floor-stand attachment	7412K1000	
400BD	Barn door (use only as a flexible top hat for diminishing aperture glare, not for beam shaping)	PSF1019	
407CF	Color frame (use for round and oblong lenses)	7061A3007	
400L	Egg crate louver	PSF1028	
400PTH3	Top hat 3 in / 76 mm tube	PSF1022	
400PTH6	Top hat 6 in / 152 mm tube	PSF1023	
400PHH	Half hat 6 in tube	PSF1027	
400CC	C-Clamp (does not ship with fixture) (not CE)	7060A2009 (not CE)	
400SC	Safety cable (30 in / 762 mm)	7060A1022	
DPSJ-25	25 ft / 7.6 m powerCON-to-Edison input power cable with inline switch	7400B7030 (not CE)	

CONTROL

DMX Input Channel Profiles

DMX Profile	DMX Channels	Channel Assignments	Notes
5ch (Default)	5	1-Intensity 2-Red 3-Green 4-Blue 5-Strobe	Lime is mixed automatically.
RGB	3	1-Red 2-Green 3-Blue	
1ch	1	1-Intensity	This mode controls the intensity of Preset 1.
Dir	6	1-Intensity 2-Red 3-Green 4-Blue/Indigo* 5-Lime 6-Strobe	Original ColorSource PAR fixture uses blue in channel 4. Deep Blue ColorSource PAR fixture uses indigo in channel 4.

PHYSICAL

ColorSource PAR Dimensions*

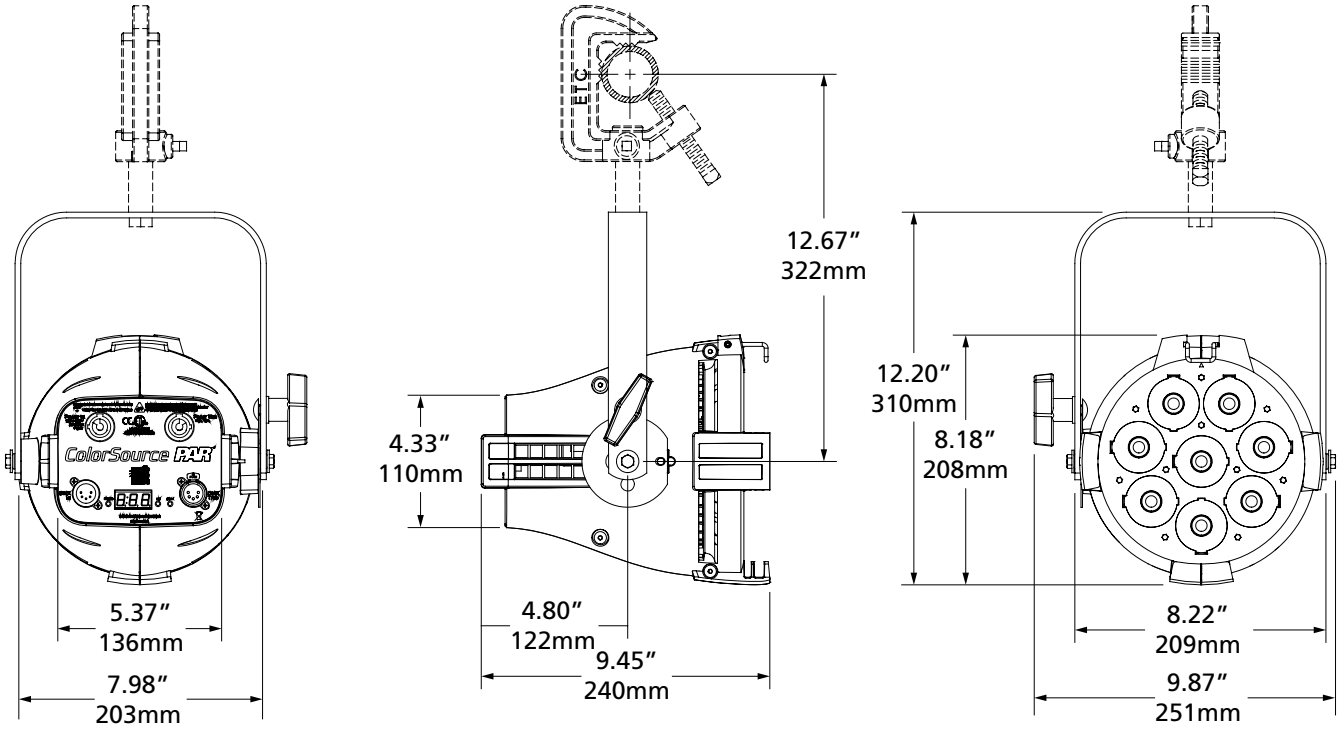
HEIGHT		WIDTH		DEPTH	
in	mm	in	mm	in	mm
12.20	310	7.98	203	9.45	240

* Does not include mounting hardware

ColorSource PAR Weights*

WEIGHT*		SHIPPING WEIGHT	
lb	kg	lb	kg
8.3	3.8	10.1	4.6

* Does not include mounting hardware



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Attachment C: Scope of Work and Site Logistics

Furnish and Deliver Lighting Equipment per the detailed specifications. Bidder shall coordinate and schedule delivery with point of contact provided. Inside delivery of the equipment will be made to Queensborough Community College, 222-25 56th Ave., Humanities Building, Bayside NY 11364.