QUAD NARROW

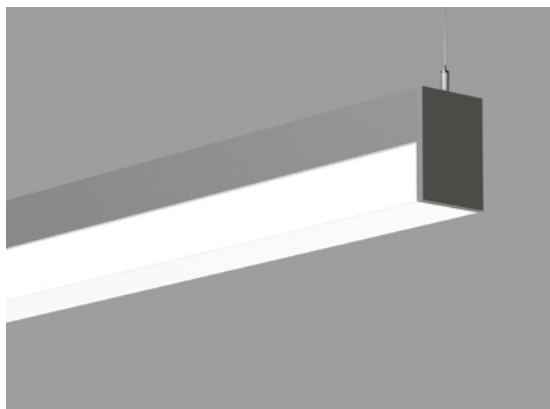## PENDANT DIRECT

www.lumenwerx.com

CHROMAWERX TUNABLE WHITE AND DIM TO WARM

IMPORTANT: a qualified DMX integration consultant is required to ensure proper installation and function of any DMX network

Quad narrow HLO optics

DESCRIPTION

Quad is the simply designed and crisply executed linear luminaire for circulation, general, and utility applications. The High-efficiency Lambertian Optic provides excellent luminous efficacy and uniform luminosity across the diffuser. Quad is available in either a wide 3.5" or narrow 2.5" profile, along with surface and wall models, and can be installed in continuous runs. Not with standing the compact form, a full range of electrical and integrated control options is available. Quad is an ideal vehicle for ChromaWerx white tuning in education, office, and healthcare applications where modular recessed luminaires are used.

PROJECT: _____

TYPE: _____

NOTES: _____

up to 122 lm/w performance

ORDER GUIDE

QUANP	HLO	LED			
LUMINAIRE ID	**OPTICS**	**LIGHT SOURCE**	**CRI**	**LUMEN PACKAGES**	**CHROMAWERX**
QUANP - quad narrow pendant	**HLO** - High-Efficiency Lambertian Optic	**LED** - high performance LED	**80** - 80CRI **90** - 90CRI	**550** - min. low output 550lm/ft **750** - medium output 750lm/ft **1000** - max. high output 1000lm/ft **####** - other required lm/ft	**DUO** - tunable white 2 channel control 27k to 65k **SOLA** - dim to warm single channel control 22k to 35k

			1	**5WAC36**
LUMINAIRE LENGTH	**VOLTAGE**	**DRIVER**	**ELECTRICAL**	**MOUNTING**
Available sections - 4' 8' & 12' **#FT** - nominal length in feet **(2' increments only)** Continuous Run - for luminaires over 8'	**120** - 120V **277** - 277V	**DMX** - to specify see pages 4 to 9 **DA** - Dali (duo only) local on-site commissioning is required **0-10** - Single 0-10V input (Sola) or dual 0-10V input for CCT/Intensity (Duo) **PSQ0** - Lutron T-Series 1% Tunable White	**1** - 1 circuit	**53WAC36** - power 5" + non power 3" white canopy (36" air craft cable) For all other options refer to our Pendant Mounting Guide

See page 2 for ordering code detailed information

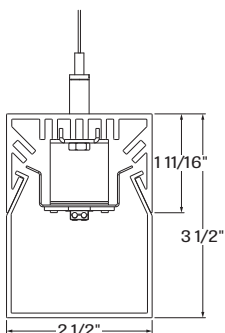| FINISH	OPTIONS
W - matte white **AL** - aluminum **CF#** - custom finish specify RAL#	**FU** - fuse **TB#** - T-bar caddy clip specify grid size **TG#** - Tegular caddy clip specify grid size **ST** - Screw Slots caddy clip **CU** - custom

DMX WALL CONTROLS

To specify see pages 4 to 9

CHROMAWERX

CROSS SECTION

1 11/16"
3 1/2"
2 1/2"

QUANP - air craft cable - narrow

OPTICS

HLO - High-efficiency Lambertian Optic

ANSI C78.377-2015

2700 K
3000 K
3500 K
4000 K
4500 K
5000 K
5700 K
6500 K

Black body curve

ETL Listed c-us Intertek
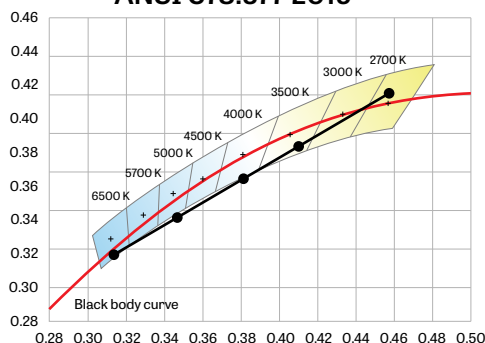
CHROMAWERX TUNABLE WHITE AND DIM TO WARM

OPTICS

HIGH EFFICIENCY LAMBERTIAN OPTIC (HLO) - matte white side reflectors combined with High-Efficiency Lambertian Optic (HLO) shielding of diffusing 0.075" thick acrylic with up to 88% transmission and good source obscuration. Luminaire brightness is controlled by the flux-to-shielding area ratio.

LIGHT SOURCE - LED

PERFORMANCE PER 4' AT 4000K

LED output	Color Temp	Watts	Nominal Delivered Lumens	Efficacy LPW
low output	4000K	18	2200	122
medium output	4000K	25	3000	119
high output	4000K	33.5	4000	119

| Lumen Adjustment Factors	
2700K	0.917
3000K	0.959
3500K	0.988
4000K	1.000
6500K	1.053

Custom linear array of alternating color temperature mid-flux LED's are mounted directly to the housing for optimal thermal performance. For the Duo products, a color temperature range from 2700K-6500K is achievable with color points on or below the black body curve. For the Sola products, a color temperature range from 2200K-3500K is controlled synchronously with intensity. Color consistency between fixtures is maintained to within 3SDCM. LEDs are operated at reduced drive current to optimize efficacy and lumen maintenance.

All LED's have been tested in accordance with IESNA LM-80-08 and the results have shown L80 lumen maintenance greater than 60,000 hours. Absolute product photometry is measured and presented in accordance with IESNA LM-79, unless otherwise indicated.

LUMINAIRE LENGTH

Quad is made up of standard 4, 8 and 12 foot sections that may be joined together to create longer continuous run lengths. Exact run length must be noted in the product code.
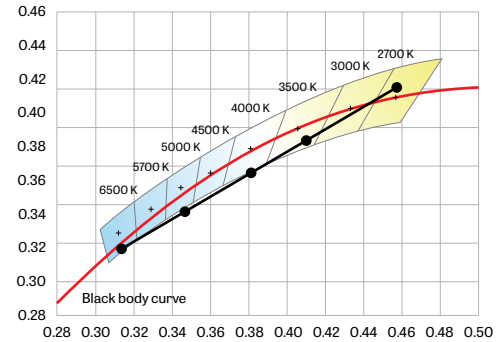
All individual sections are joined together onsite using the joiner kits provided. LumenWerx offers joiner kits that are extremely simple to work with in the field and result in a fixture that appears virtually seamless with no light leak at any connection.
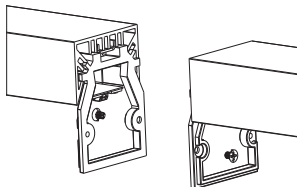
joining system Quad

CHROMAWERX - TUNABLE WHITE

ANSI C78.377-2015

ChromaWerx Sola is single-channel control that dims output while warming the color temperature in a pre-determined relationship. A simple digital or analog control sends a common signal to dual output digital drivers, which are programmed to adjust a specially populated LED array to emulate the effect of dimming a filament source. Dimming range is programmable but the default option runs from 3500K at 100% of full power to 2200K at 5% of full power. CRI is maintained above 80 throughout the dimming range.

ChromaWerx Duo is two-channel control. It uses an analog (0-10V) protocol for separate control of luminaire CCT and intensity or a digital (DMX, DALI) protocol for synchronous control of both warm and cool LED arrays to enable the user to set color temperature and light output. Commonly called "tunable white", ChromaWerx two-channel control provides the range of warm (2700K) to cool (6500K) color that can be useful for helping to entrain circadian rhythms, stimulate alertness for improved educational and work productivity, and compensate for jet lag, among other applications. The ChromaWerx drivers are programmed to limit maximum light output and power usage across all color temperatures. CRI is maintained above 80.

CHROMAWERX TUNABLE WHITE AND DIM TO WARM

ELECTRICAL

DMX (Duo only)

Factory-set, adjustable output current, multi-channel LED driver with universal (120-277VAC) input. Using DMX wall controls (optionally supplied by LumenWerx) or an existing DMX control system, two channels of LEDs (warm-white & cool-white) are independently adjustable. Each DMX driver has multiple output channels that can be independently addressed at the factory or on-site using built-in RDM (Remote Device Management) functionality. Dimming range from 100%-0%. At maximum driver load, efficiency<89%, PF>0.9, THD<20%.

Dali (Duo Only)

Factory-set, adjustable output current LED driver with universal (120-277VAC) input. Using an existing DALI control system (supplied by others), one control channel adjusts the fixture color temperature, and the other control channel adjusts fixture brightness. Dimming range from 100%-0%. At maximum driver load, efficiency<86%, PF>0.9, THD<20%.

0-10V (Sola)

Factory-set, adjustable output current LED driver with universal (120-277VAC) input. Using a single 0-10V control signal, the light output warms in color temperature as it dims down to 1% and 2200K. At maximum driver load, efficiency<86%, PF>0.9, THD<20%.

0-10V (Duo)

Factory-set adjustable output current LED driver with universal (120-277VAC) input. Controlled via two individual 0-10V signals, one for setting light output down to a minimum of 1% and the other for adjusting the CCT (default range of 2700K-6500K). Rated life of 50,000 hours at 70°C maximum driver case temperature and 100% load conditions. Typical efficiency of 86%, PF>0.9, THD<20% at 100% load conditions.

MOUNTING OPTIONS

Fixtures can be pendant-mounted, using aircraft cables.

Unless otherwise specified, LumenWerx provides the following hardware:

For cable-mounted fixtures - 53WAC36 (5" white canopy for all power mounting point, 3" white canopy for non power mounting point, and a 36" cable)

Caddy clips, if required specify under **OPTIONS**

For all other options, see our website for a detailed Pendant Mounting Guide

FINISH

Interior - 95%, reflective matte powder coated white paint

Exterior - matte white or aluminum powder coating.

Custom finishes are also available.

CONSTRUCTION

Housing - Extruded Aluminum (0.085" nominal) up to 90% Recycled Content

Interior brackets - Die formed cold rolled sheet steel 20 gauge thick

Joining system - Die cast Aluminum (0.85" nominal)

Reflectors - Flat rolled Aluminum sheet 0.040" thick precisely die formed, 95% reflective matte white painted

End caps - Die cast Aluminum (0.85" nominal)

Hanger - Chromed Griplock securely attached with spring steel hardware in end caps and/or joiners

Air craft cable suspension - 7x7 braids Aluminum air craft cable 0.06" thick

WEIGHT

Quad narrow 4ft - 8.48lbs - 3.85kg

Quad narrow 8ft - 17.07lbs - 7.75kg

Quad narrow 12ft - 25.33lbs - 11.5kg

CERTIFICATIONS

ETL - Rated for Indoor Dry/Damp locations. Conforms to UL Standard 1598 and certified to CAN/CSA Standard C22.2 No. 250.0.

WARRANTY

For all ChromaWerx products, LumenWerx provides a three-year limited warranty of electrical and mechanical performance of the luminaires, including the LED boards, drivers, and auxiliary electronics. LumenWerx will repair or replace defective luminaires or components at our discretion, provided they have been installed and operated in accordance with our specifications. Other limitations apply, please refer to the full warranty on our website.

Wall controllers are covered by the manufacturer warranty.

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QUAD NARROW

PENDANT DIRECT

CHROMAWERX TUNABLE WHITE

DUO DMX SPECIFICATION

A qualified DMX integrator is required to assure proper installation and commissioning of the DMX network. **When placing the PO, please provide the contact information of your DMX integrator.**

Please answer the following questions to help us identify your DMX network requirements.

YES · · · · · · Do you require a wall controller provided by Lumenwerx? · · · · · · NO

DMX control system supplied by others. Lumenwerx will supply DMX-enabled fixtures with default DMX addressing.
See following pages for technical DMX informations. ✓

DMX controller supplied by Lumenwerx

How many zones do you have?
A zone consists of one or more luminaires behaving identically.

1 Zone   **2 Zones**

How to calculate the required number of drivers:

per 4' fixture

| Driver |
| 1x driver |

Direct only

per 4' fixture

| Driver | Driver |
| 2x driver |

Direct high output

To Calculate # of drivers

1 - 4 Zones   **5 or more Zones**

Do you have more than 32 drivers in total?

NO   YES

Order a standard Lumenwerx wall controller.

WALL CONTROLLER

WCW - wall controller white
WCB - wall controller black

Add the control code at the end of your order code.
Please provide a fixture layout or RCP (Reflected Ceiling Plan) showing the locations of the DMX fixtures, zones and the DMX wall controller.
Refer to your DMX integrator for the installation. ✓

Subject to factory evaluation ans approval. Please contact our controls specialist at controls@lumenwerx.com Additional cost and equipment will be required. ✓

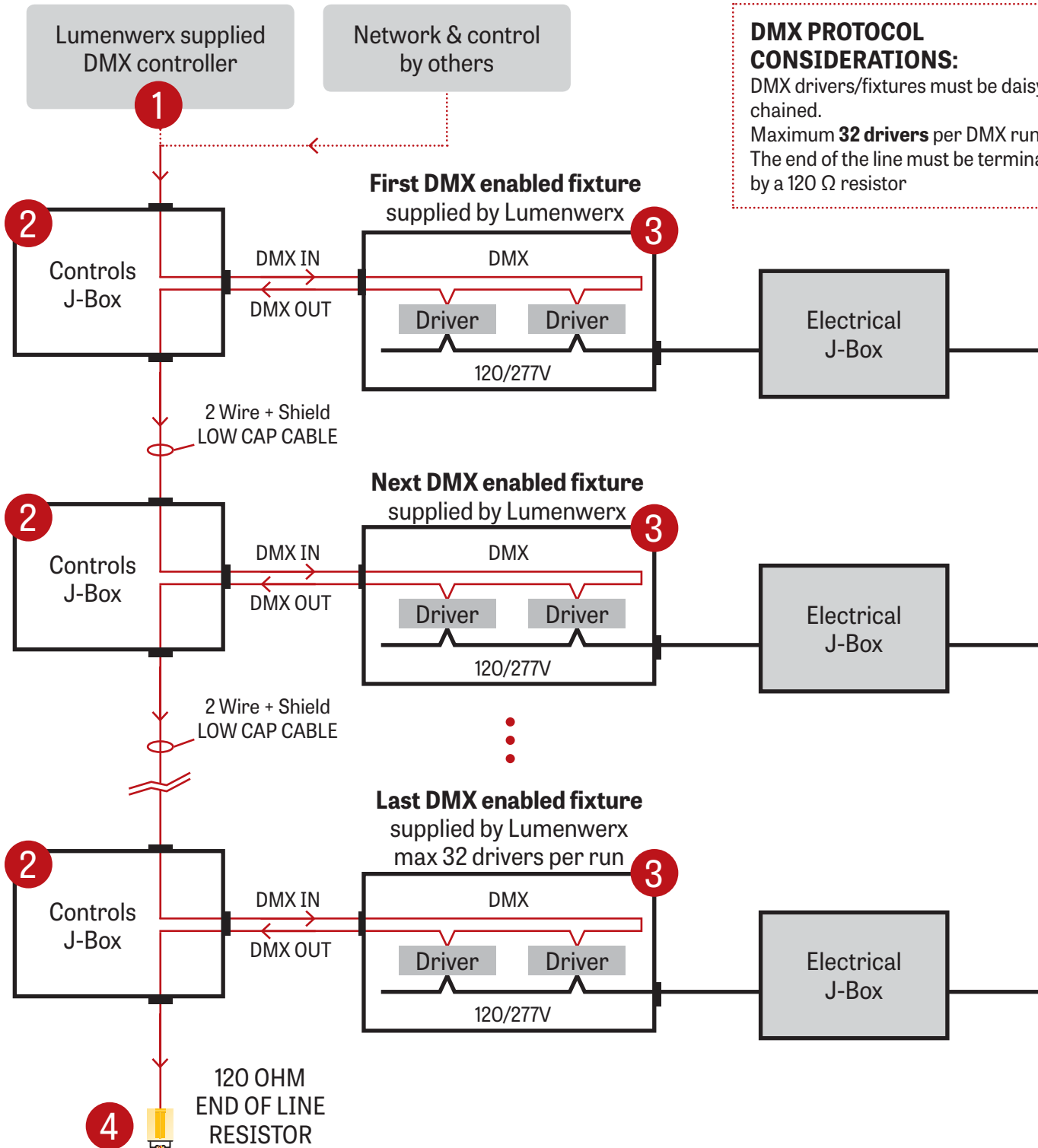Subject to factory evaluation. Please contact our controls specialist at controls@lumenwerx.com Additional cost and equipment will be required. ✓

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QUAD NARROW

PENDANT DIRECT

CHROMAWERX TUNABLE WHITE

GENERIC DMX NETWORK ARCHITECTURE

Lumenwerx supplied
DMX controller

1

Network & control
by others

**DMX PROTOCOL
CONSIDERATIONS:**
DMX drivers/fixtures must be daisy
chained.
Maximum **32 drivers** per DMX run.
The end of the line must be terminated
by a 120 Ω resistor

2

Controls
J-Box

DMX IN

DMX OUT

First DMX enabled fixture
supplied by Lumenwerx

3

DMX

Driver   Driver

120/277V

Electrical
J-Box

2 Wire + Shield
LOW CAP CABLE

2

Controls
J-Box

DMX IN

DMX OUT

Next DMX enabled fixture
supplied by Lumenwerx

3

DMX

Driver   Driver

120/277V

Electrical
J-Box

2 Wire + Shield
LOW CAP CABLE

2

Controls
J-Box

DMX IN

DMX OUT

Last DMX enabled fixture
supplied by Lumenwerx
max 32 drivers per run

3

DMX

Driver   Driver

120/277V

Electrical
J-Box

4 120 OHM
END OF LINE
RESISTOR

ETL LISTED
c us
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QUAD NARROW

PENDANT DIRECT

CHROMAWERX TUNABLE WHITE

1 LUMENWERX SUPPLIED DMX CONTROLLER

To the first fixture

WALL BOX SUPPLIED BY OTHERS

2 Wire +
Shield Low Cap Cable

Back Panel

Front Panel

GND | V+ 12-24 Vdc | DMX- | DMX+ | SHIELD

BLACK | RED | WHT-BLUE | BLUE | BARE

Z1
Z2
S1   Z3
S2   Z4

Controller image may differ

I.E.: Cerco Cable 7539-10
Belden 9841
Belden 8241

Power Supply
120-240V AC / 12VDC or 24VDC

N   BLUE   Neutral
DC in
L   BROWN   Line

DC out

Ground

Electrical
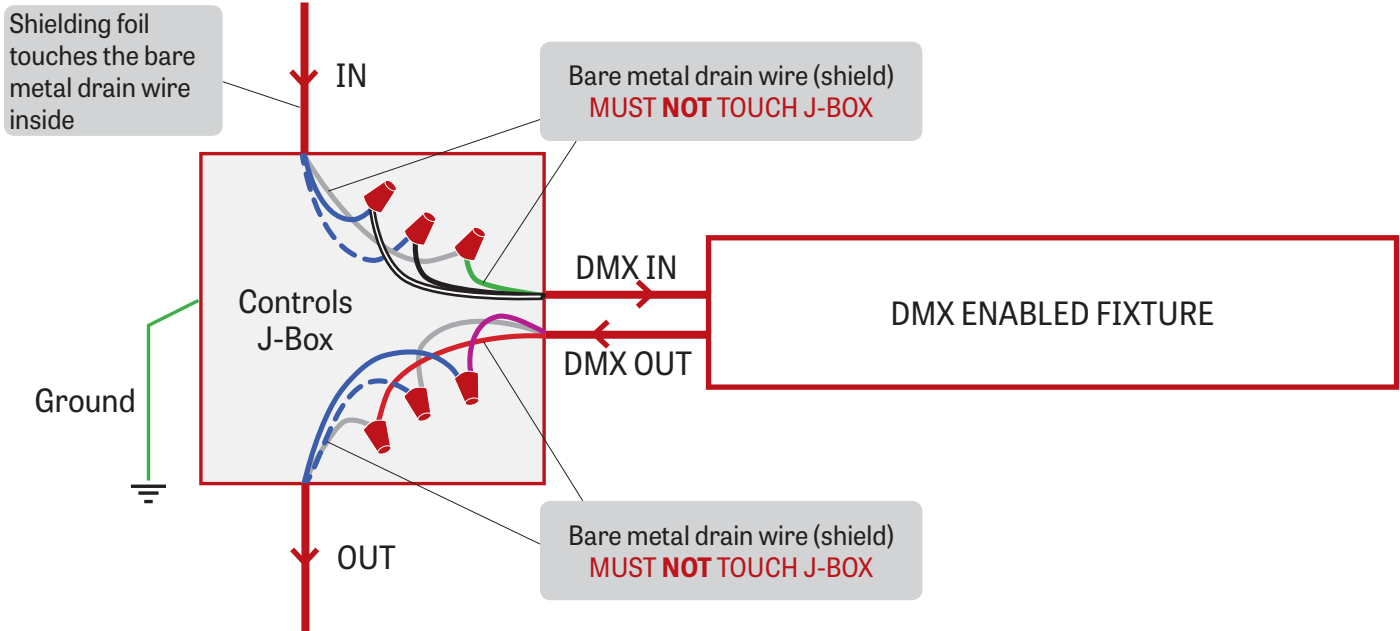J-Box

ETL LISTED
Intertek
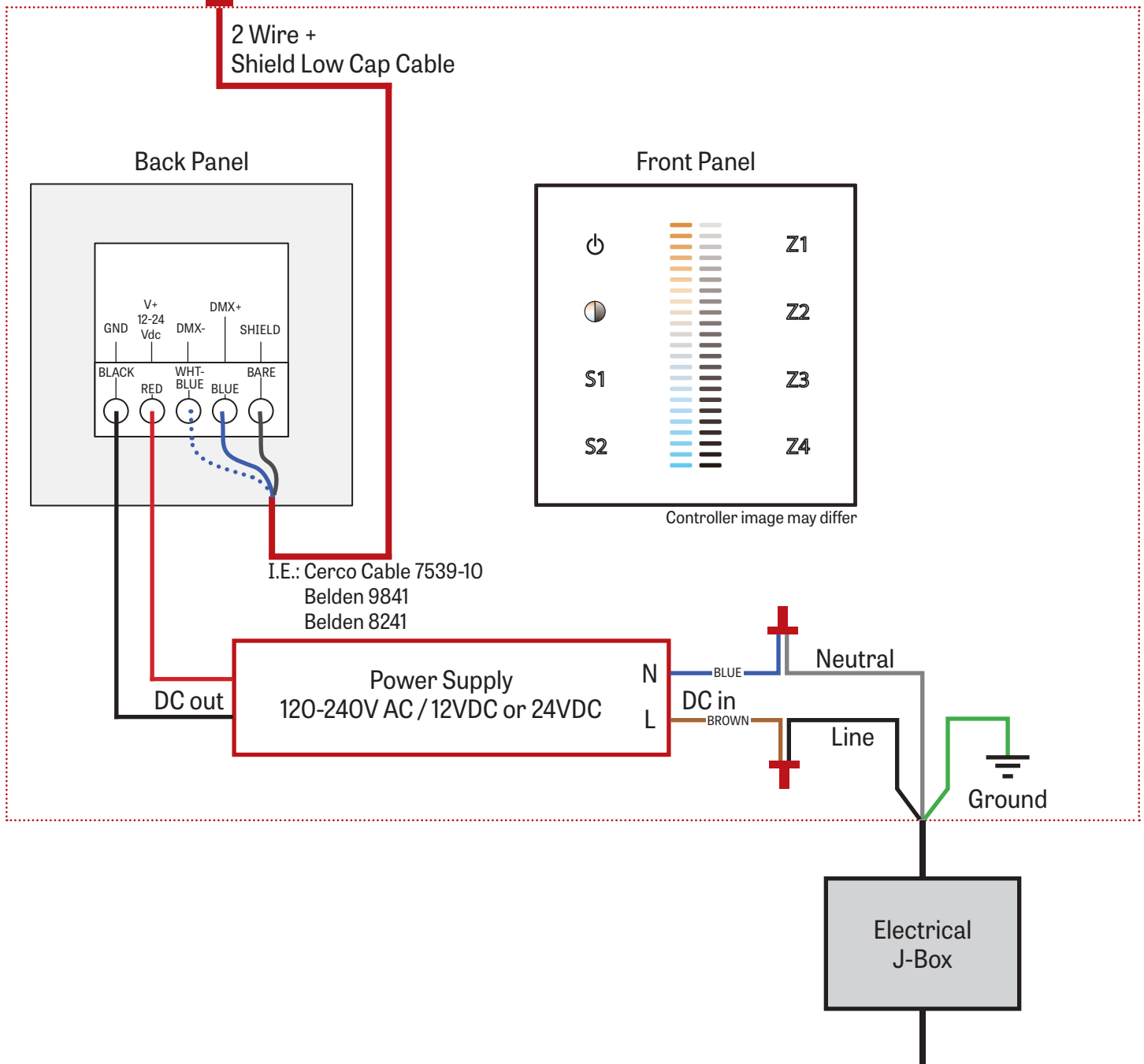
CHROMAWERX TUNABLE WHITE

2 J-BOX DMX DAISY CHAIN DETAIL
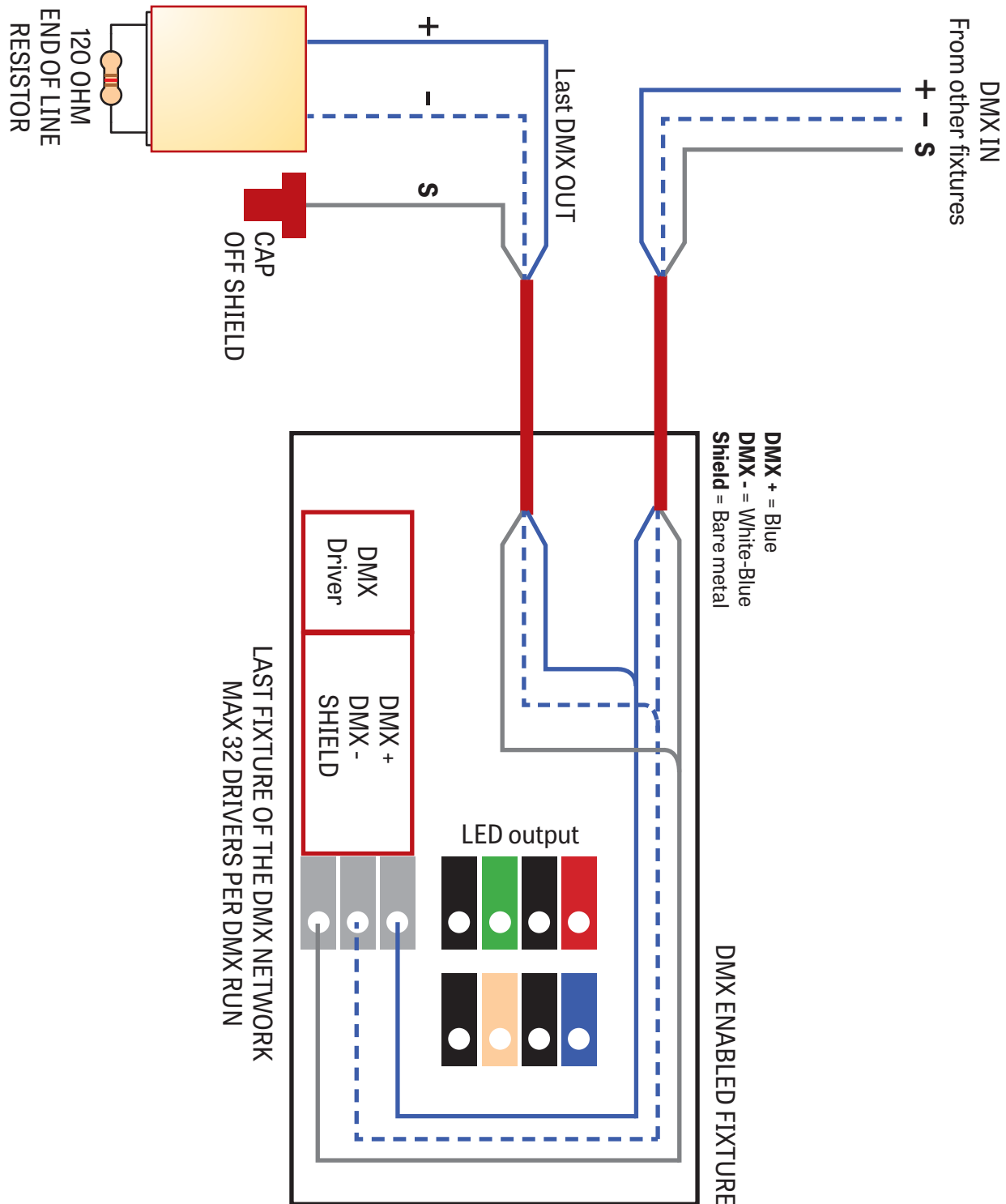
Low capacitance DMX Cable from Previous Fixture

Shielding foil touches the bare metal drain wire inside

IN

Bare metal drain wire (shield)
MUST **NOT** TOUCH J-BOX

Controls
J-Box

DMX IN

DMX ENABLED FIXTURE

DMX OUT

Ground

OUT

Bare metal drain wire (shield)
MUST **NOT** TOUCH J-BOX

Low capacitance DMX cable to next fixture

3 DMX CONNECTION PENDANT & WALL

DMX

IN   OUT
+ - s   + - s

white
black
green
purple
grey
red

POWER

LINE
VOLTAGE

white
black
green

N   L   G

DMX ENABLED FIXTURE

DMX

PWR

ETL
Intertek
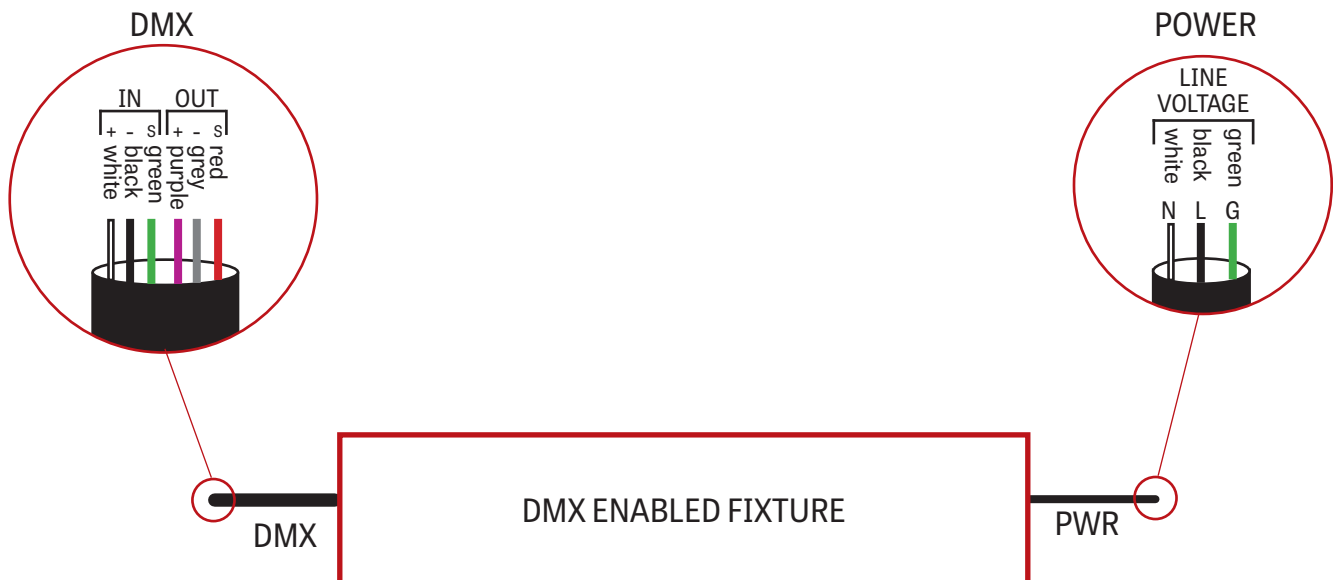
CHROMAWERX TUNABLE WHITE

4 DMX LAST FIXTURE DETAIL

120 OHM
END OF LINE
RESISTOR

+

−

Last DMX OUT

S

CAP
OFF SHIELD

DMX IN
From other fixtures

+ − S

DMX + = Blue
DMX − = White-Blue
Shield = Bare metal

DMX
Driver

DMX +
DMX −
SHIELD

LAST FIXTURE OF THE DMX NETWORK
MAX 32 DRIVERS PER DMX RUN

LED output

DMX ENABLED FIXTURE

Intertek

QUAD NARROW

PENDANT DIRECT

CHROMAWERX TUNABLE WHITE

DMX WALL CONTROLLER

DUO 1-4 ZONE
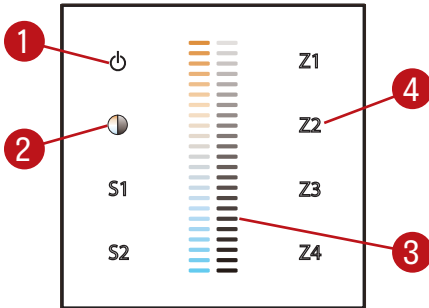
(1) Power:	Use this button to turn ON or OFF the fixture
(2) Brightness/CCT:	Use the color/brightness toggle button to chose between color/brightness. when Blue: brightness is selected, when Yellow: color is selected.
(3) Slider:	Depending on the mode chosen in 2, the slider will allow the user to set desired color or brightness.
(4) Zone select:	Up to 4 zones can be selected either independently or together. Once selected the commands will be sent to the zone identified by a Blue LED.

Default DMX Addresses:
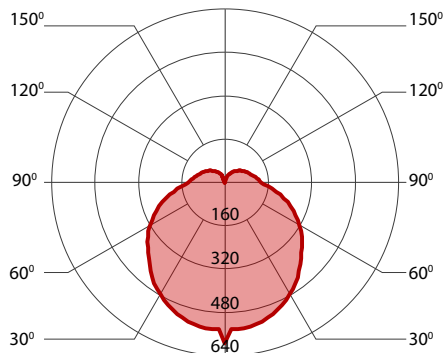**1 Warm**
2 Cool

QUAD NARROW

PENDANT DIRECT

LUMENWERX
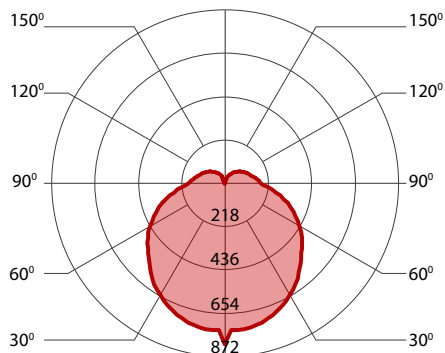WWW.LUMENWERX.COM

CHROMAWERX TUNABLE WHITE AND DIM TO WARM

550 LUMEN AT 80CRI - LOW OUTPUT

PERFORMANCE PER 4'

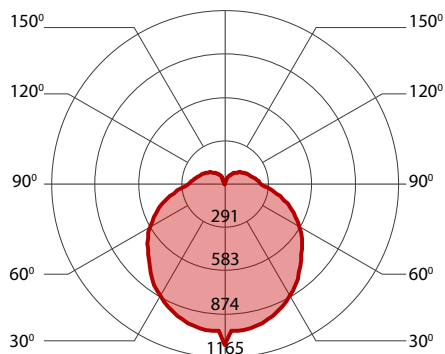| LED output	Color Temp	Watts	Nominal Delivered Lumens	Efficacy LPW
low output	2700K	19.5	2200	112
low output	3000K	19	2200	115
low output	3500K	18.5	2200	118
low output	4000K	18	2200	122
low output	6500K	17.5	2200	126

750 LUMEN AT 80CRI - MEDIUM OUTPUT

PERFORMANCE PER 4'

LED output	Color Temp	Watts	Nominal Delivered Lumens	Efficacy LPW
medium output	2700K	27.5	3000	110
medium output	3000K	26.5	3000	113
medium output	3500K	26	3000	116
medium output	4000K	25	3000	119
medium output	6500K	24	3000	124

1000 LUMEN AT 80CRI - HIGH OUTPUT

PERFORMANCE PER 4'

LED output	Color Temp	Watts	Nominal Delivered Lumens	Efficacy LPW
high output	2700K	36.5	4000	110
high output	3000K	35.5	4000	113
high output	3500K	35	4000	115
high output	4000K	33.5	4000	119
high output	6500K	32.5	4000	124

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