CAVA SQUARE LED

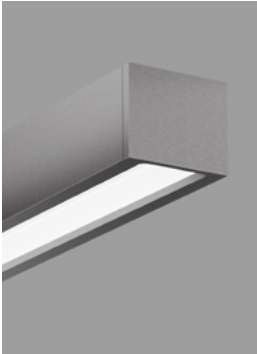**SURFACE**

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

DESCRIPTION

Cava is a linear LED recessed, surface and pendant luminaire with a remarkably comfortable and surprising appearance. Using completely concealed and indirect LED arrays, Cava provides superior brightness control, while maintaining high efficacy by distributing light over the vaulted interior cavity of the luminaire. Cava is an ideal vehicle for ChromaWerx white tuning in education, office, and healthcare applications where modular luminaires are used.

PROJECT: _____

_____

TYPE: _____

NOTES: _____

_____

up to 99 lm/w performance

ORDER GUIDE

CAVSS	CO	RLO	LED				
LUMINAIRE ID	**END CAP**	**OPTICS**	**LIGHT SOURCE**	**CRI**	**LUMEN PACKAGES**		**CHROMAWERX**
CAVSS - cava square surface	**CO** - closed end cap	**RLO** - Reduced Luminance Optic	**LED** - high performance LED	**80** - 80CRI **90** - 90CRI	**350** - min. low output 350lm/ft **500** - medium output 500lm/ft **750** - max. high output 750lm/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	
LUMINAIRE LENGTH	**VOLTAGE**	**DRIVER**		**ELECTRICAL**	**MOUNTING**
Available sections - 4', 8' & 12' **#FT** - nominal length in feet **(2' increments only)** Continuous Run - for luminaires over 12' Minimum Individual section 4'	**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	**GRD** - grid ceiling **DRC** - drywall ceiling **OHC** - other ceiling (specify)

See page 2 for ordering code detailed information

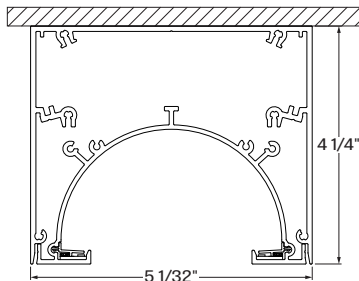| FINISH	OPTIONS
W - matte white **AL** - aluminum **B** - matte black **CF#** - custom finish specify RAL#	**FU** - fuse **TB#** - T-bar caddy clip specify grid size **TG#** - Tegular caddy clip specify grid size **ST** - Screw Slots caddy clip **CU** - custom

DMX WALL CONTROLS

To specify see pages 4 to 9

CHROMAWERX

CROSS SECTION

4 1/4"

5 1/32"

CAVSS - surface

ANSI C78.377-2015

2700 K
3000 K
3500 K
4000 K
4500 K
5000 K
5700 K
6500 K
Black body curve

ETL
Intertek
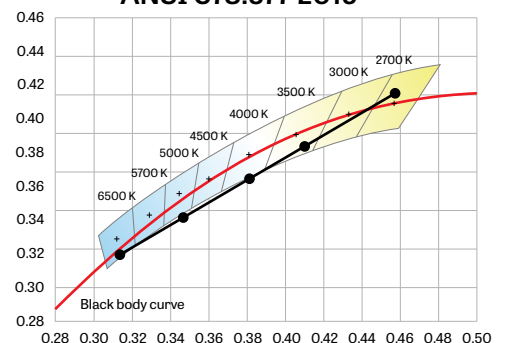
CHROMAWERX TUNABLE WHITE AND DIM TO WARM

OPTICS

REDUCED LUMINANCE OPTIC (RLO) - reduced Luminance Optic (RLO) consists of indirect-mounted LED arrays illuminating a vaulted reflector with a matte white finish greater than 95% reflectivity. The ultra-shallow arrays in RLO completely conceal the light source while evenly distributing brightness over the entire surface of the cavity using a combination of multiple reflective bounces and a very high diffuse reflectivity. Compared to diffusing optics, RLO reduces luminaire brightness due to the visible interior surface being larger than the aperture.

LIGHT SOURCE - LED

PERFORMANCE PER 4' AT 4000K

| LED output	Color Temp	Watts	Nominal Delivered Lumens	Efficacy LPW
low output	4000K	14	1400	99
medium output	4000K	20.5	2000	98
high output	4000K	31.5	3000	95

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

LUMINAIRE LENGTH

Cava 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. The minimum individual section available is 4 foot, and continuous run lengths can be ordered in 2 foot increments.
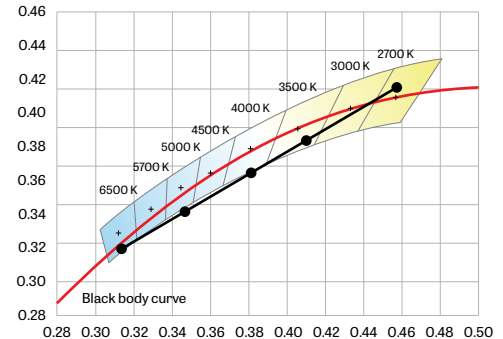
All individual sections are joined together onsite using the joiner kits provided. LumenWerx offers joiner kits that are extremely simple to work with in the field and result in a fixture that appears virtually seamless with no light leak at any connection.
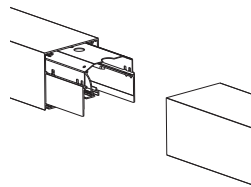
joining system for Cava square

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.

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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 mounted directly to T-Bar, drywall and hard surface ceilings, hardware supplied by others. Long runs require a minimum of 6" distance from the vertical wall.

FINISH

Interior - 95%, reflective matte powder coated white paint
Exterior - matte white, matte black or aluminum powder coating.
Custom finishes are also available.

CONSTRUCTION

Housing - Extruded Aluminum 0.075" nominal, matte white or aluminum powder coating.
End cap - Die cast Aluminum (0.95" nominal)
Joiners - Die cast Aluminum (0.95" nominal)
Reflectors - Extruded Aluminum 0.07" nominal, 95% reflective matte white painted

WEIGHT

Cava square 4ft - 26.02lbs - 11.8kg
Cava square 8ft - 52.04lbs - 23.6kg
Cava square 12ft - 78.06lbs - 35.4kg

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

LumenWerx provides a five-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.

CAVA SQUARE LED

SURFACE

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.

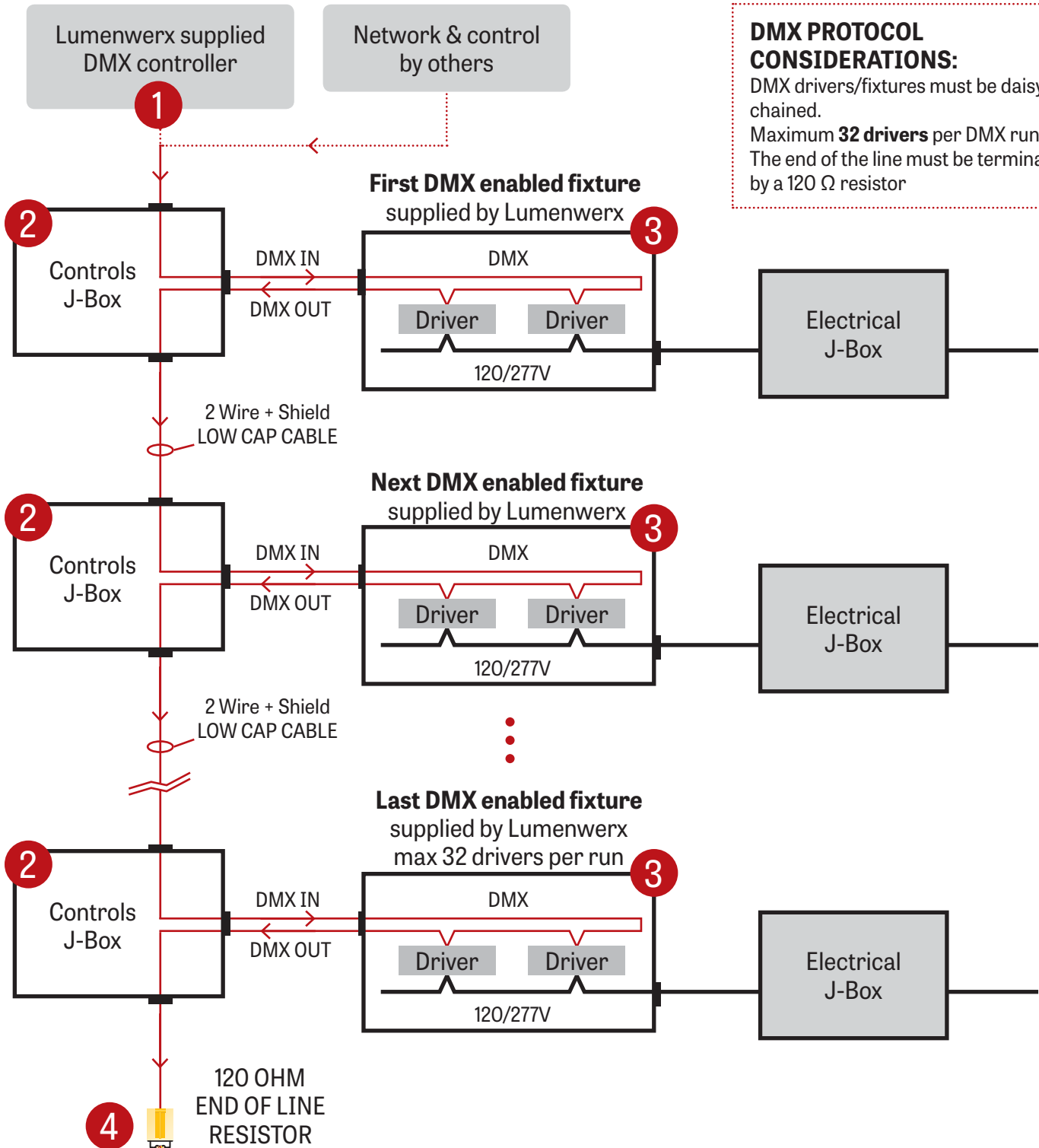| WALL CONTROLLER |
| --- |
| **WCW** - wall controller white |
| **WCB** - wall controller black |

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

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

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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

First DMX enabled fixture
supplied by Lumenwerx **3**

DMX IN
DMX OUT

DMX
Driver   Driver
120/277V

Electrical J-Box

2 Wire + Shield
LOW CAP CABLE

2 Controls J-Box

Next DMX enabled fixture
supplied by Lumenwerx **3**

DMX IN
DMX OUT

DMX
Driver   Driver
120/277V

Electrical J-Box

2 Wire + Shield
LOW CAP CABLE

2 Controls J-Box

Last DMX enabled fixture
supplied by Lumenwerx
max 32 drivers per run **3**

DMX IN
DMX OUT

DMX
Driver   Driver
120/277V

Electrical J-Box

4 120 OHM END OF LINE RESISTOR

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SURFACE

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

V+
12-24
Vdc   DMX+

GND   DMX-   SHIELD

BLACK   WHT-   BARE
         BLUE
    RED   BLUE

Front Panel

Z1
Z2
S1   Z3
S2   Z4

Controller image may differ

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

DC out

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

N   BLUE   Neutral

L   BROWN   DC in

DC in

Line

Ground

Electrical
J-Box

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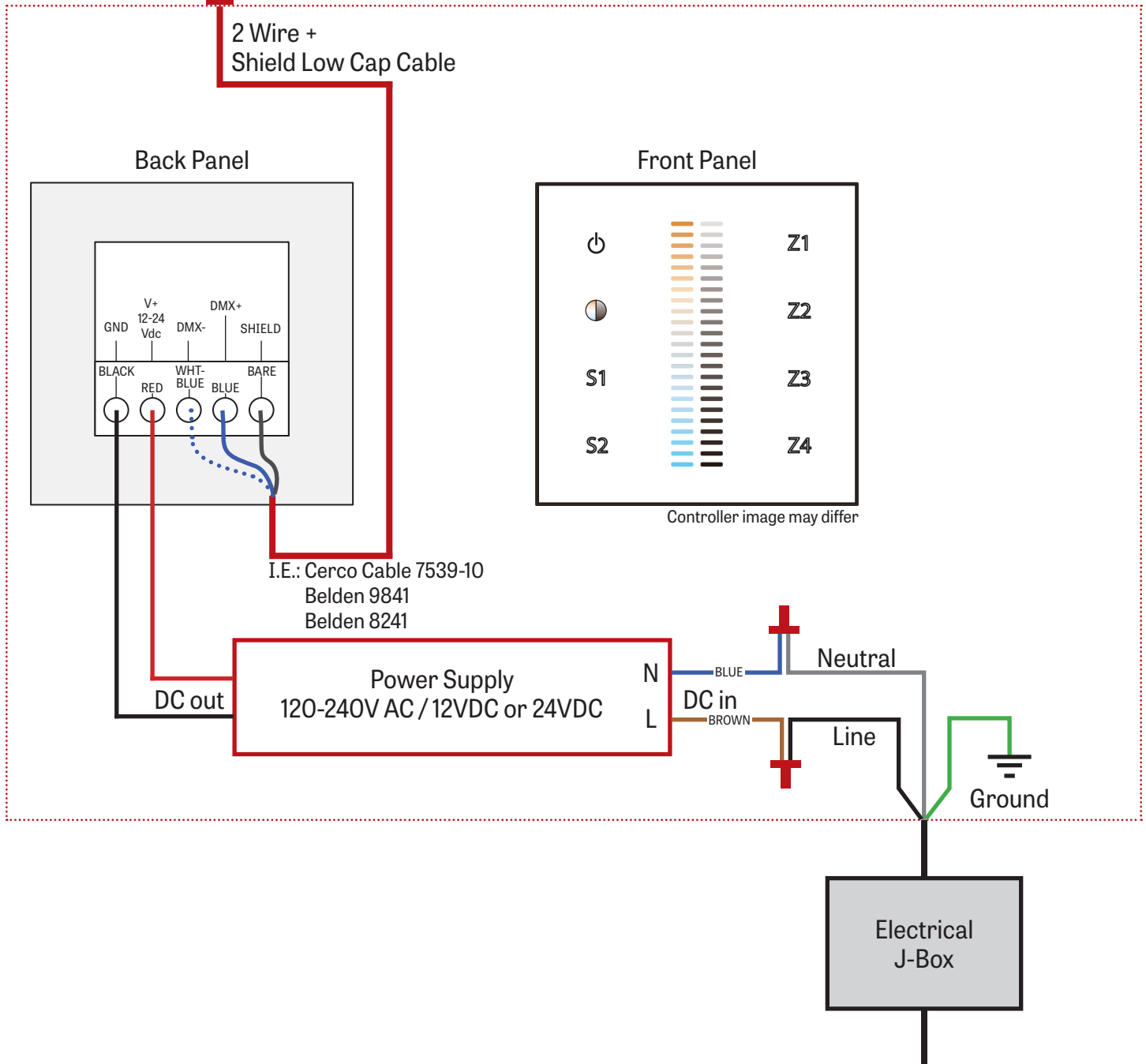
CHROMAWERX TUNABLE WHITE

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 OUT

DMX ENABLED FIXTURE

Ground

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

OUT
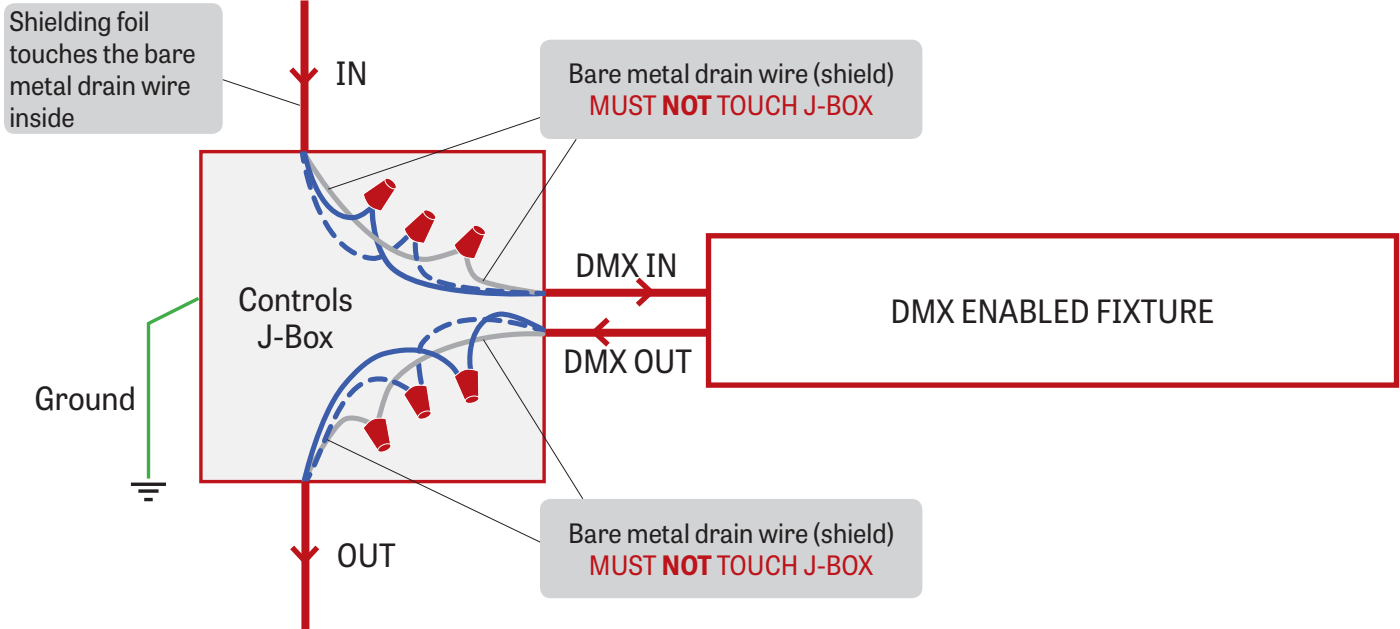
Low capacitance DMX cable to next fixture

3   DMX CONNECTION RECESSED & SURFACE

DMX

IN   OUT
Shield DMX- DMX+   Shield DMX- DMX+

POWER

LINE VOLTAGE
white   black   green
N   L   G

DMX

DMX ENABLED FIXTURE

PWR

ETL
Intertek
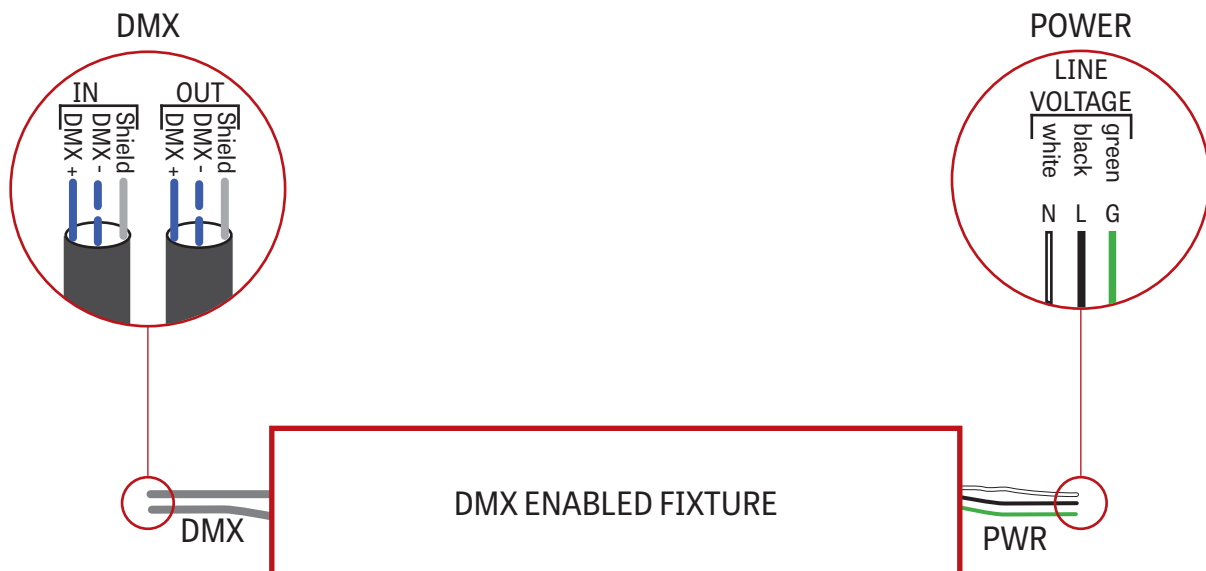
CHROMAWERX TUNABLE WHITE

4 DMX LAST FIXTURE DETAIL

120 OHM
END OF LINE
RESISTOR

CAP
OFF SHIELD

Last DMX OUT

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

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c ETL us
Intertek
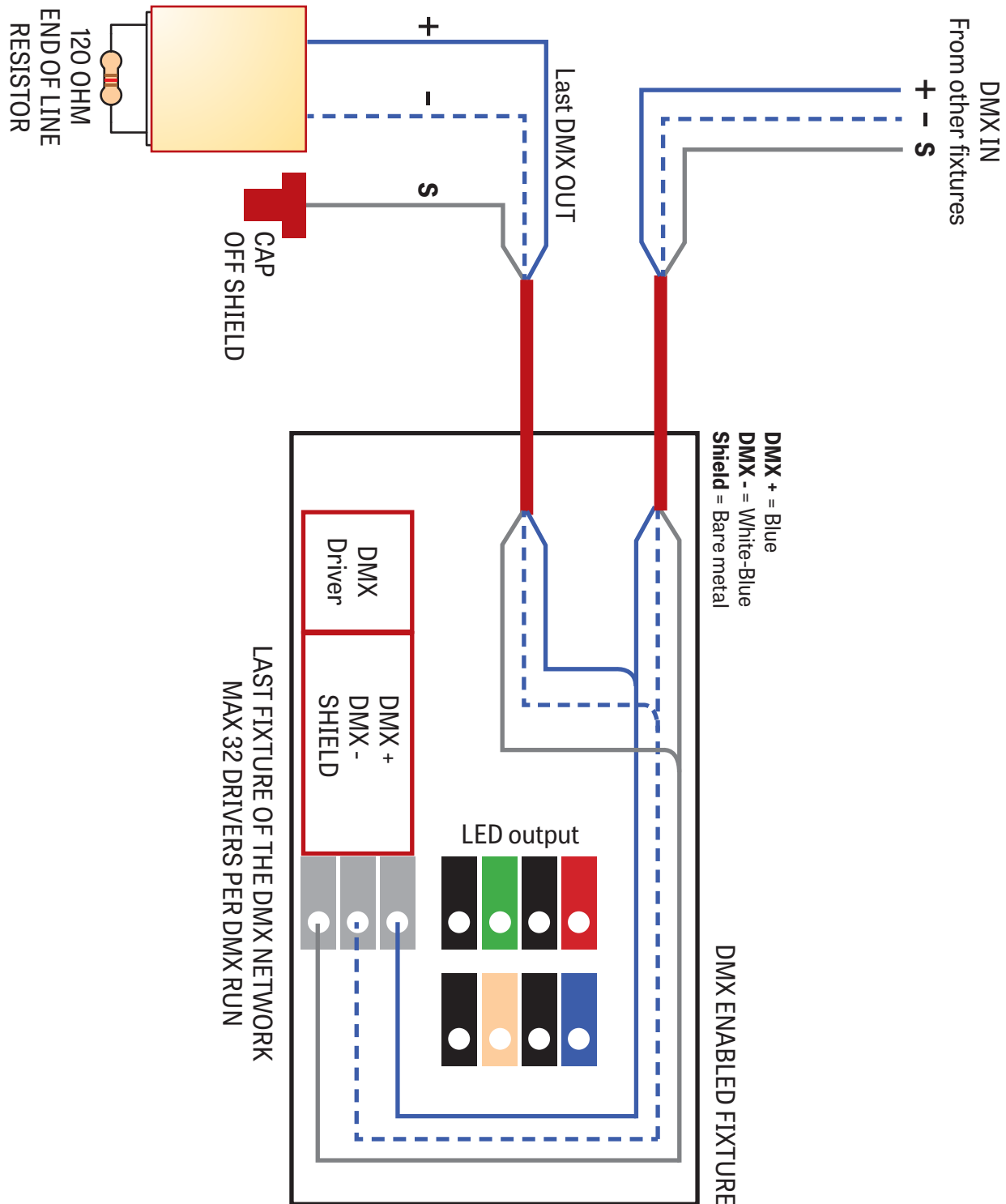
CAVA SQUARE LED

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CHROMAWERX TUNABLE WHITE

DMX WALL CONTROLLER

DUO 1-4 ZONE
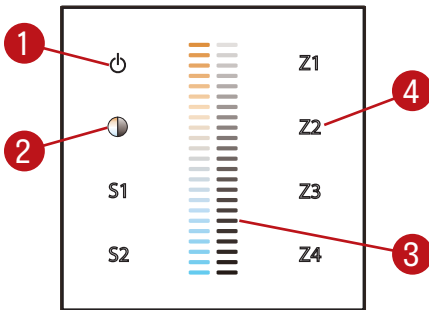
(1) Power: Use this button to turn ON or OFF the fixture

(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.
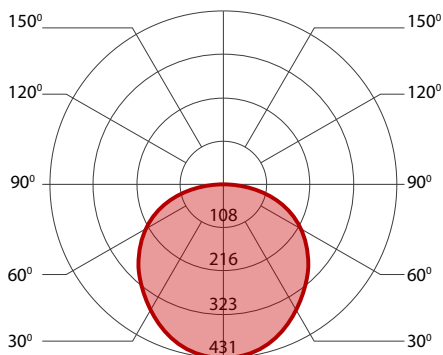
Default DMX Addresses:
1 Warm
2 Cool

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CAVA SQUARE LED

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CHROMAWERX TUNABLE WHITE AND DIM TO WARM

350 LUMEN AT 80CRI - LOW OUTPUT

PERFORMANCE PER 4'

LED output	Color Temp	Watts	Nominal Delivered Lumens	Efficacy LPW
low output	2700K	14.5	1400	96
low output	3000K	14.5	1400	98
low output	3500K	14	1400	99
low output	4000K	14	1400	99
low output	6500K	13.5	1400	105

500 LUMEN AT 80CRI - MEDIUM OUTPUT
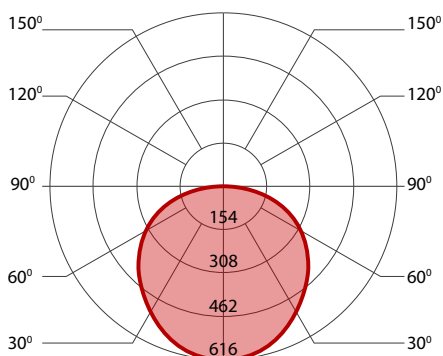
PERFORMANCE PER 4'

LED output	Color Temp	Watts	Nominal Delivered Lumens	Efficacy LPW
medium output	2700K	21.5	2000	94
medium output	3000K	20.5	2000	97
medium output	3500K	20.5	2000	98
medium output	4000K	20.5	2000	98
medium output	4000K	19	2000	104

750 LUMEN AT 80CRI - HIGH OUTPUT
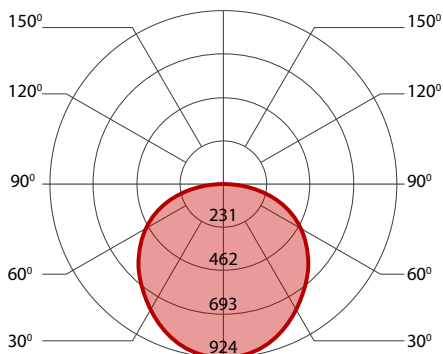
PERFORMANCE PER 4'

LED output	Color Temp	Watts	Nominal Delivered Lumens	Efficacy LPW
high output	2700K	33.5	3000	90
high output	3000K	32	3000	94
high output	3500K	31.5	3000	95
high output	4000K	31.5	3000	95
high output	4000K	30	3000	100

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