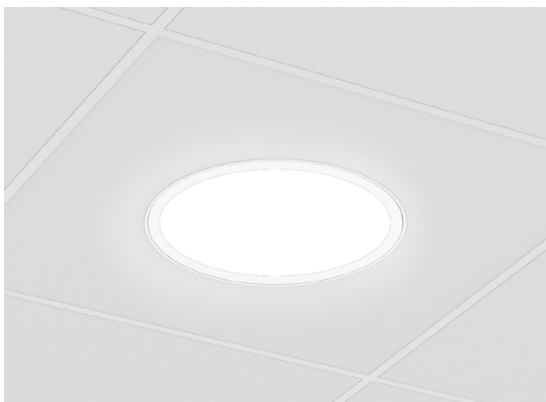# POP RECESSED

ROUND 12
CHROMAWERX SOLA AND DUO

Lumenwerx

Project: _____

Type: _____

DESCRIPTION

POP Recessed features a uniformly luminous diffuser that sits flush with the ceiling. The diffuser and light engine form a fully enclosed unit secured by a twist-and-lock mechanism for easy maintenance with no exposed hardware. POP Recessed delivers up to 101 LPW and installs in grid or gypsum board ceilings. POP Recessed is an ideal vehicle for Chromawerx white tuning in education, office, and healthcare applications where modular luminaires are used.
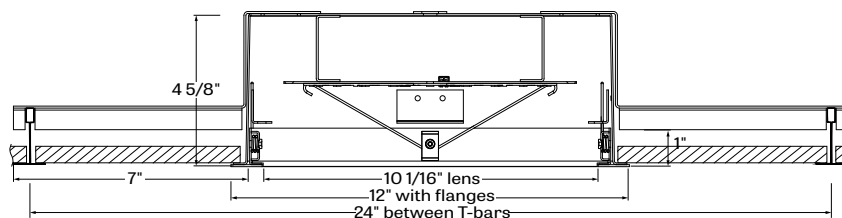
Flush lens

5 YEAR WARRANTY

IP54

IC RATED

Up to 101 lm/W performance

Order Guide

LUMINAIRE ID	SIZE	OPTIC	LENS	LIGHT SOURCE	CRI	LUMEN PACKAGE
	12IN		**FH**			
POROR [1] - Pop Round Recessed **POSEALROR** [1,2] - Pop Seal Round Recessed [1] IK10 rated when specified with PTR optic. [2] IP54 rated when specified with drywall ceiling mounting option.	**12IN** - Ø 12"	**ULO** [3] - Uniform Lambertian Optic **ATR** [4] - Acrylic lens with tamper-resistant screws **PTR** - Polycarbonate lens with tamper-resistant screws [3] Not available with Pop Seal model (POSEALROR). [4] Only available with Pop Seal model (POSEALROR).	**FH** - Flush	**SOLA** - Dim-to-warm single channel control 35K to 22K **DUO** - Tunable white 2-channel control 27K to 65K	**80** - 80CRI **90** - 90CRI	**750** - Min. low output 750lm **900** - Medium output 900lm **1100** - Max. high output 1100lm **####** - Other required lm

VOLTAGE	DRIVER [5]	ELECTRICAL	MOUNTING	FINISH	OPTIONS
		1			
120 - 120V **277** - 277V	**DMX** [6] - To specify see pages 5 to 10 **DA** [6] - 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** [6] - Lutron T-Series 1% Tunable White (Duo only) [5] PoE (Power-over-Ethernet) compatible. Consult factory for details. [6] On-site commissioning is required.	**1** - 1 circuit	**TG9** - Tegular 9/16" **TG15** - Tegular 15/16" **TB9** - T-Bar 9/16" **TB15** - T-Bar 15/16" **ST** - Screw slot t-bar **DF** - Drywall kit	**W** - Matte white **WA** - White antimicrobial Silverwerx	**FU** - Fuse **CP** - Chicago Plenum **NA** - None

DMX WALL CONTROLS

To specify see pages 5 to 10

CROSS SECTION

4 5/8"

1"

7"

10 1/16" lens

12" with flanges

24" between T-bars

POROR + FH - pop round recessed with flush lens

ETL c LISTED us
Intertek

POPRECESSED-12-TW-ROUND-RECESSED-SPEC-REV2-   April 11, 2024

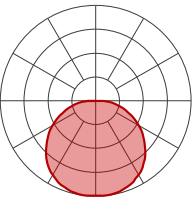**PoE** Power over Ethernet   **NSF**

POP RECESSED

ROUND 12
CHROMAWERX SOLA AND DUO

Photometrics

750 LUMEN AT 80 CRI - LOW OUTPUT

LED OUTPUT	COLOR TEMP	WATTS	NOMINAL DELIVERED LUMENS	EFFICACY LPW
Low output	2700K	8	750	93
Low output	3000K	8	750	95
Low output	3500K	7.5	750	98
Low output	4000K	7.5	750	101
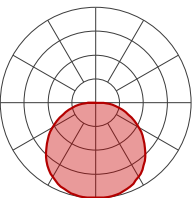
900 LUMEN AT 80 CRI - MEDIUM OUTPUT

LED OUTPUT	COLOR TEMP	WATTS	NOMINAL DELIVERED LUMENS	EFFICACY LPW
Medium output	2700K	10	900	91
Medium output	3000K	9.5	900	93
Medium output	3500K	9.5	900	96
Medium output	4000K	9	900	99
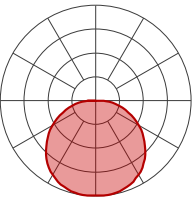
1100 LUMEN AT 80 CRI - HIGH OUTPUT

| LED OUTPUT	COLOR TEMP	WATTS	NOMINAL DELIVERED LUMENS	EFFICACY LPW
High output	2700K	11.5	1100	95
High output	3000K	11.5	1100	94
High output	3500K	11.5	1100	97
High output	4000K	11	1100	100

Technical Specifications

OPTICS

UNIFORM EFFICIENCY LAMBERTIAN OPTIC (ULO) - made of formed impact modified white PMMA, the optic provides an even light distribution with up to 88% transmission. Its unique enclosed shell design protects LEDs against Electrostatic Discharge and dust while its back surface project a soft glow on the mounting surface.

LIGHT SOURCE

Custom array of alternating color temperature mid-flux LEDs 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 3500K-2200K 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 LEDs 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.

CHROMAWERX - TUNABLE WHITE

ANSI C78.377-2015
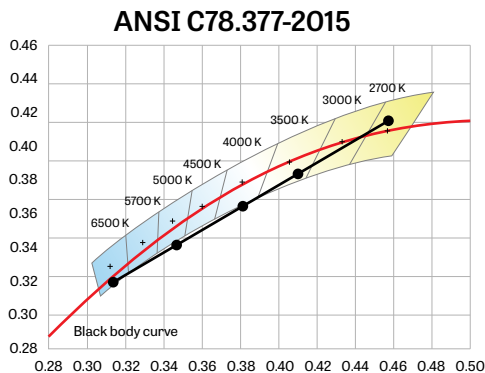
Chromawerx Sola is single-channel control that dims output while warming the color temperature in a pre-determined relationship. A simple digital or analog control sends a common signal to dual output digital drivers, which are programmed to adjust a specially populated LED array to emulate the effect 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.

ELECTRICAL

DMX (Duo only)

Factory-Set adjustable output current electronic driver with 120-277V AC line input. Using DMX wall controls (optionally supplied by Lumenwerx) or an existing DMX control system, both channels of LEDs are independently adjustable. Each DMX driver can be independently addressed using the built-in RDM (Remote Device Management) in the field. Dimming down to 1% is attainable. Rated life (90% survivorship) of 50,000 hours at 50°C maximum ambient temperature. At maximum driver load, efficiency<84%, PF>0.9, THD<20%.

Dali (Duo Only)

Factory-Set adjustable output current electronic driver with 120-277V AC line 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 down to 1% is attainable. Rated life (90% survivorship) of 50,000 hours at 50°C maximum ambient temperature. At maximum driver load, efficiency<84%, 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.

POP RECESSED

## ROUND 12
CHROMAWERX SOLA AND DUO

PSQ0 (Duo only)
Lutron T-Series 2-Channel tunable white drivers enable high-performance human centric lighting (HCL) applications. Digital control of color temperature (CCT) and intensity are achieved when used with the ESN T-Series tunable white controller as a part of a Lutron Quantum System.

PoE
Depending on the PoE manufacturer selected, Lumenwerx will install the node in factory as either integral to the luminaire or as a remote module. Factory programming of the PoE node may or may not enable the following functionalities: lumen package, Duo (tunable white), emergency battery backup, and sensor integration. These must be addressed and evaluated on a case-by-case basis.
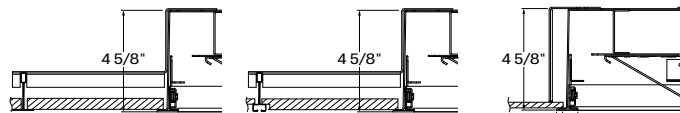
MOUNTING OPTIONS
Recess mount into exposed or concealed T-Bar or Tegular grid ceiling. A separate kit for mounting fixtures into drywall ceilings
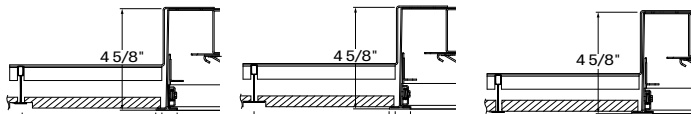
TG9 - tegular 9/16"   **TG15** - tegular 15/16"   **TB9** - t-bar 9/16"

TB15 - t-bar 15/16"   **ST** - screw slot t-bar   **DF** - drywall kit

FINISH
Interior - 95% reflective, matte white powder coating
Exterior - matte white powder coating. Optional antimicrobial finish

POP SEAL OPTION
The lens is gasketed and sealed, making the fixture suitable for healthcare applications. IP54 rated when specified with the drywall ceiling mounting option.

CONSTRUCTION
Housing - 16 gauge spun aluminum, matte white powder coating
Diffuser - Uniform Lambertian optic, thermoformed impact modified acrylic, completely enclosed
Gasket (Pop Seal) - Closed-cell silicone foam gasket

WEIGHT
RD 12 Flush - 4.24lbs - 1.93kg

CERTIFICATIONS
ETL - Rated for Indoor Dry/Damp locations. Conforms to UL Standard 1598 and certified to CAN/CSA Standard C22.2 No. 250.0.
Chicago plenum - City of Chicago Approved (CCEA)
IC rated - suitable for direct contact with insulation.
NSF - NSF2 Listed for Non-Food Zones.

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.
Wall controllers are covered by the manufacturer warranty.

POP RECESSED
ROUND 12
CHROMAWERX SOLA AND DUO

� Lumenwerx

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 <u>contact information of your DMX integrator.</u>**

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 controller supplied by Lumenwerx

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

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	per 4' fixture
Driver	Driver Driver
1x driver	2x driver
Direct only	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. ✓
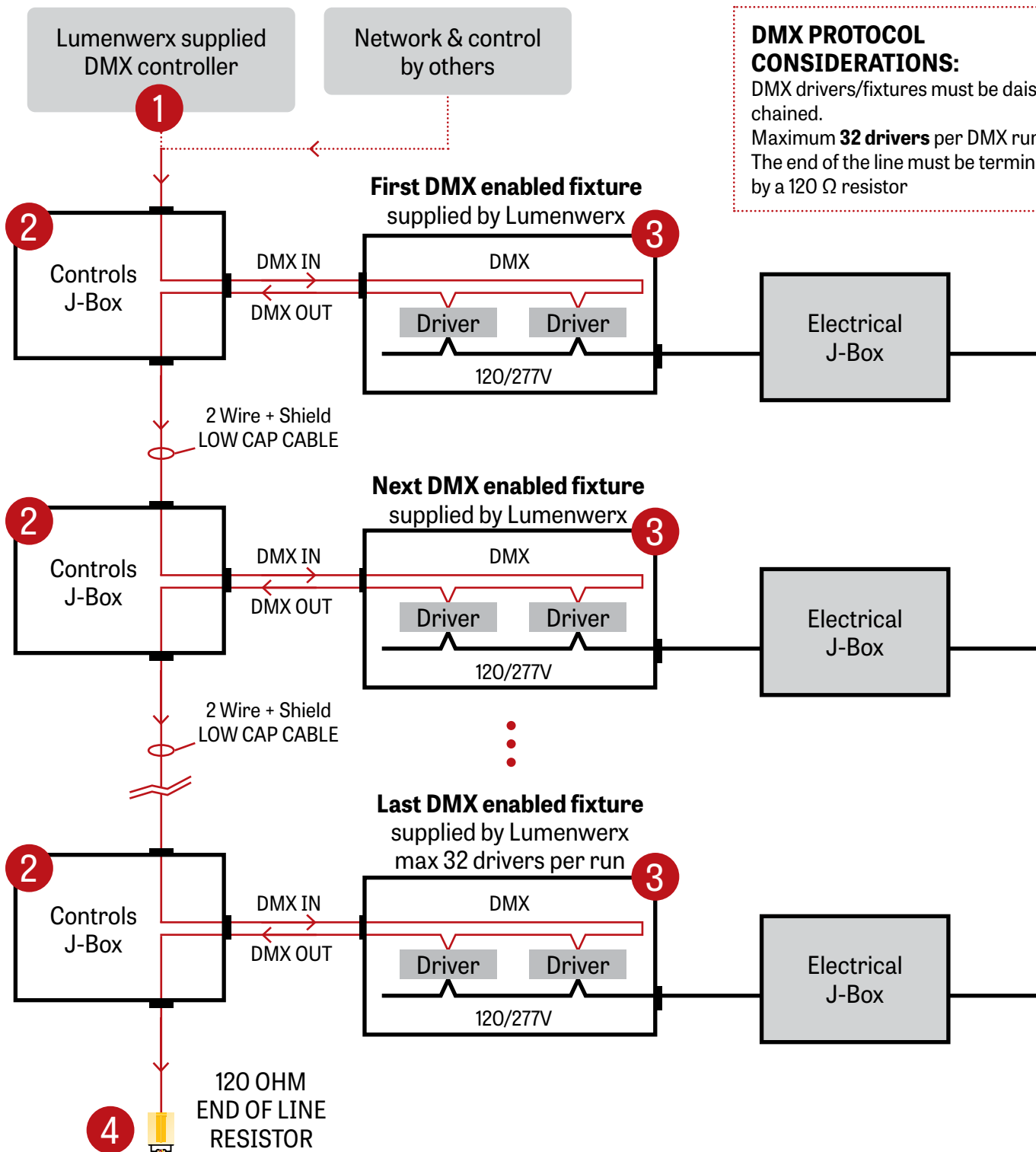
POP RECESSED

ROUND 12
CHROMAWERX SOLA AND DUO

Lumenwerx

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

cETLus   Intertek

PoE   NSF

POP RECESSED
ROUND 12
CHROMAWERX SOLA AND DUO

Lumenwerx

1 LUMENWERX SUPPLIED DMX CONTROLLER

To the first fixture

WALL BOX SUPPLIED BY OTHERS

2 Wire +
Shield Low Cap Cable

Back Panel

Front Panel

V-
12-24
Vdc

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

DC out

Power Supply
120-277VAC / 24VDC

N

L

BLUE

BROWN

DC in

Neutral

Line

Ground

Electrical
J-Box

ETL Listed Intertek   PoE Power over Ethernet   NSF
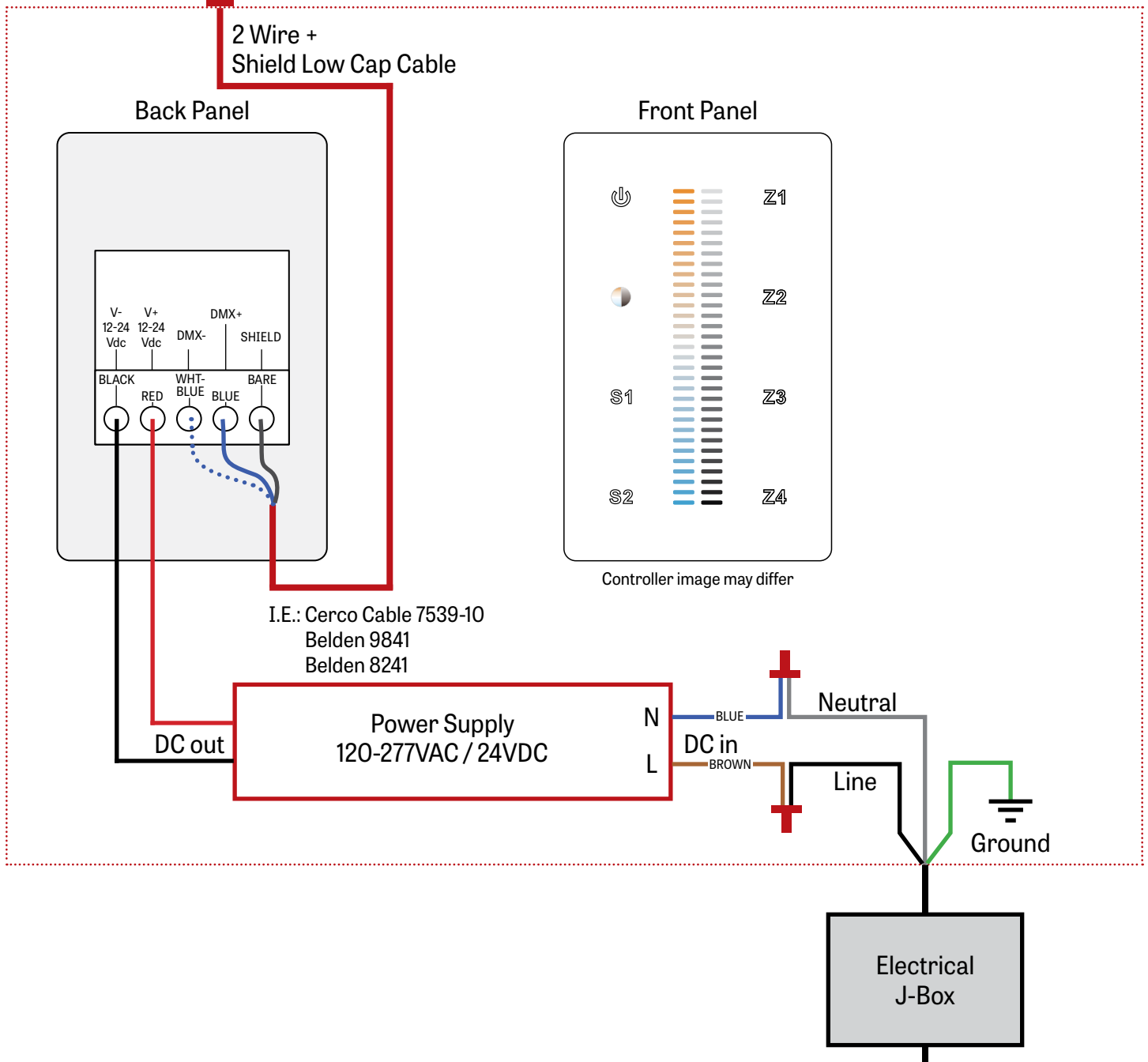
POP RECESSED
ROUND 12
CHROMAWERX SOLA AND DUO

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

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

OUT

Low capacitance DMX cable to next fixture
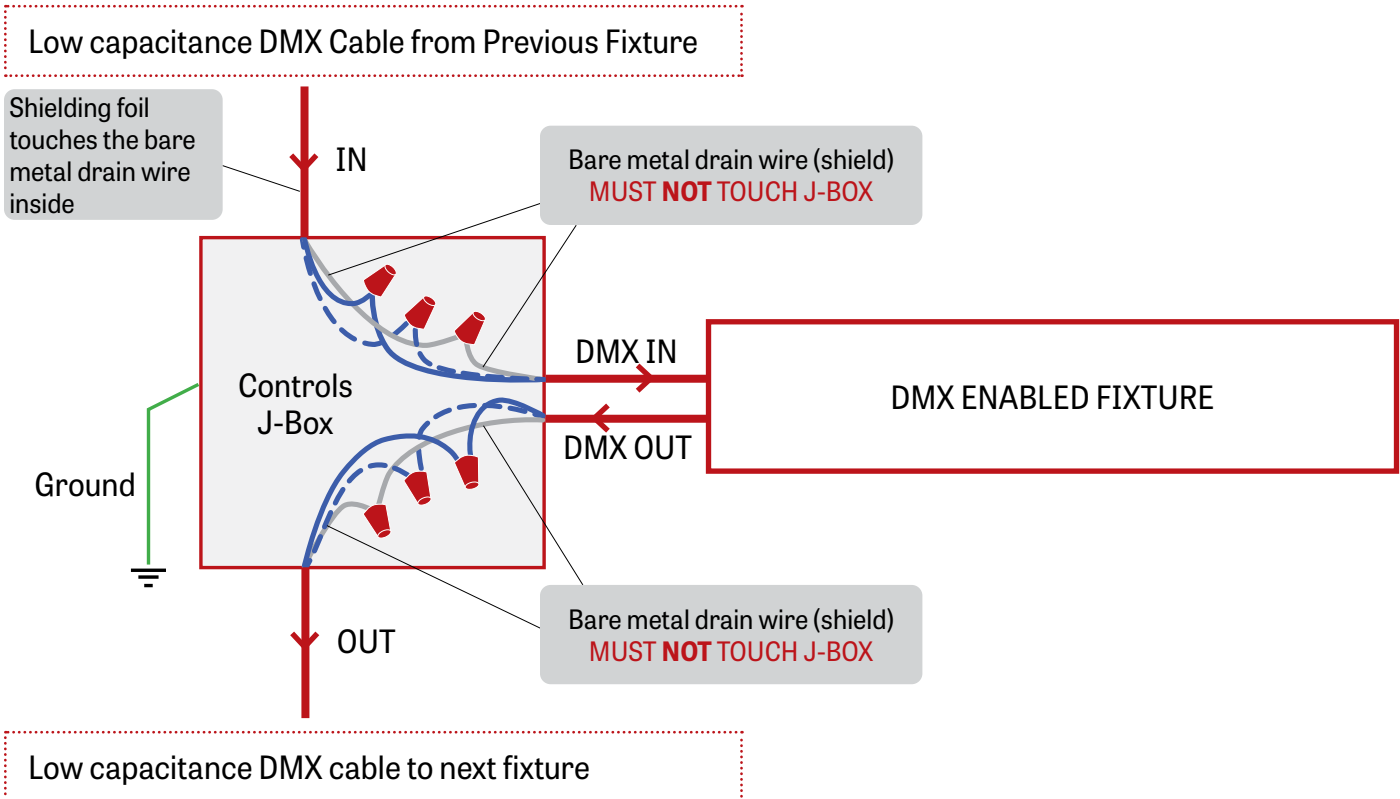
3 DMX CONNECTION RECESSED & SURFACE

DMX

IN

OUT

Shield
DMX -
DMX +

Shield
DMX -
DMX +

POWER

LINE
VOLTAGE

green
black
white

N   L   G

DMX ENABLED FIXTURE

DMX

PWR
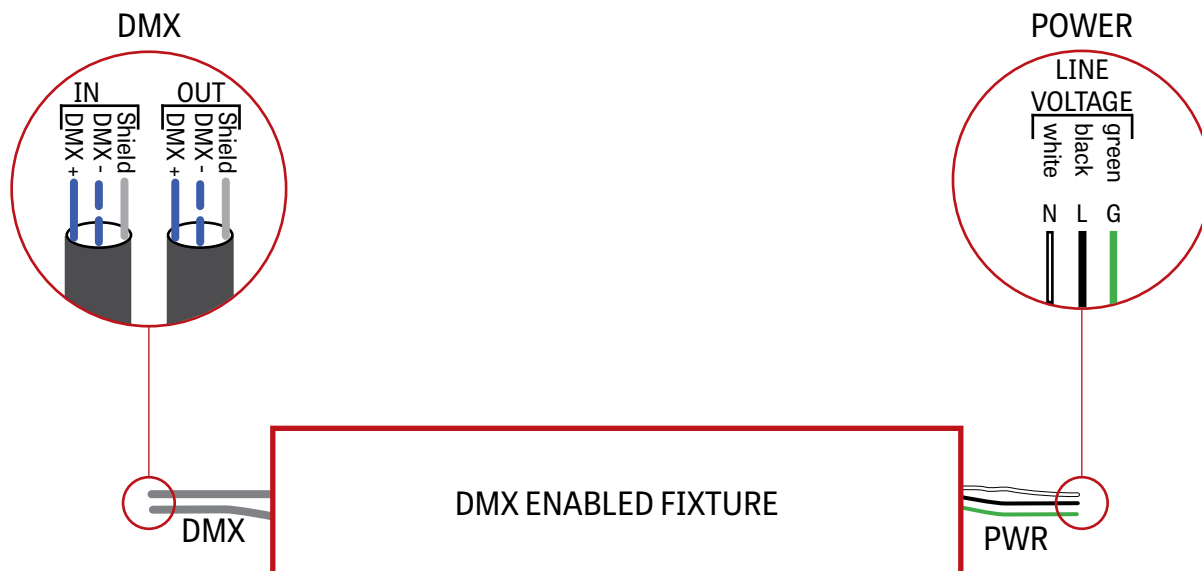
POP RECESSED
ROUND 12
CHROMAWERX SOLA AND DUO

4 DMX LAST FIXTURE DETAIL

120 OHM
END OF LINE
RESISTOR

CAP
OFF SHIELD

Last DMX OUT

+
−
S

DMX IN
From other fixtures

+
−
S

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

DMX
Driver

DMX +
DMX −
SHIELD

LED output

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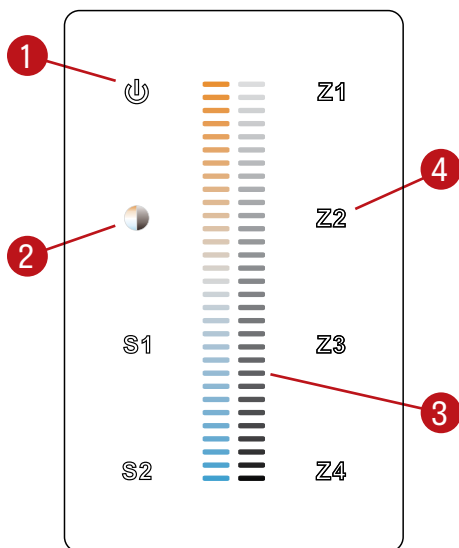
DMX ENABLED FIXTURE

POP RECESSED
ROUND 12
CHROMAWERX SOLA AND DUO

Lumenwerx
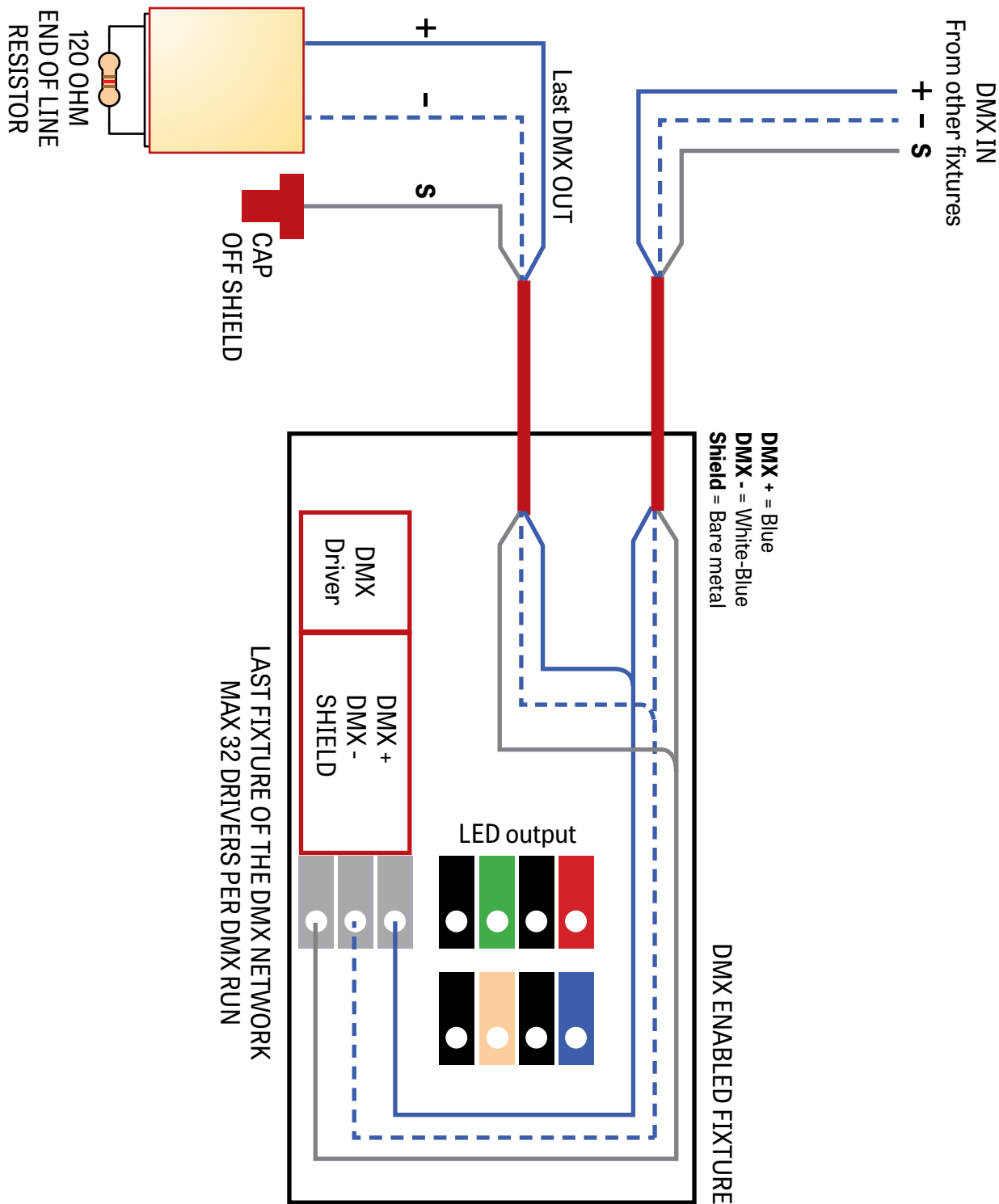
DUO 1-4 ZONE

(1) Power: Use this button to turn ON or OFF the fixture.

(2) Brightness/CCT: Use the color/brightness toggle button to choose between color/brightness. When Blue: brightness is selected, when Yellow: color is selected.

(3) Slider: Depending on the mode chosen in step 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