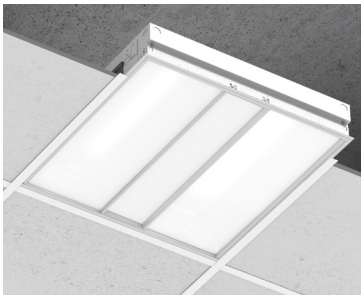
NOVA 2x2 LED

RECESSED

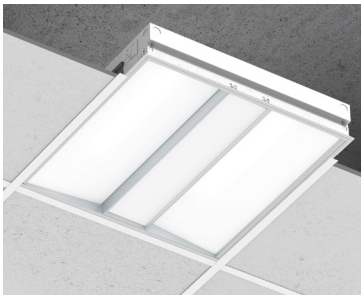
LUMENWERX
WWW.LUMENWERX.COM

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



Grid - shown with a Nova flat lens



Grid - shown with a Nova Slope lens

PROJECT: _____

_____

_____

APPROVED BY: _____

SIGNATURE: _____

DESCRIPTION

Nova is an efficient architectural LED troffer with a distinctive luminous shielding that distributes gentle brightness from the sides of its central optical element. Using advanced LED engines, Nova provides highly efficient illumination and offers comprehensive ceiling, electrical, and controls options in 2x2, 1x4, and 2x4 sizes. Nova is available with both Flat and Slope side diffusers. Nova is an ideal vehicle for ChromaWerx white tuning in education, office, and healthcare applications where modular luminaires are used. See separate spec sheets for other available mountings.

CHROMAWERX

up to 117 lm/w performance

***IC* RATED**

ORDER GUIDE

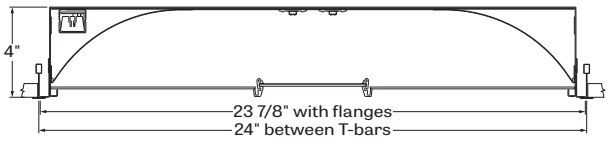
	22	PMO	HLO	LED			
LUMINAIRE ID	**SIZE**	**CENTER OPTICS**	**SIDE OPTICS**	**LIGHT SOURCE**	**CRI**	**LUMEN PACKAGES**	**CHROMAWERX**
NOVRF - nova recessed flat **NOVRS** - nova recessed slope	**22** - 2'x2'	**PMO** - Precision Micro-Prism Optic	**HLO** - High-Efficiency Lambertian Optic	**LED** - high performance LED	**80** - 80CRI **90** - 90CRI	**2300** - min. low output 2300lm **3200** - medium output 3200lm **4200** - max. high output 4200lm **####** - other required lm	**DUO** - tunable white 2 channel control 27k to 65k **SOLA** - dim to warm single channel control 22k to 35k

		1			
VOLTAGE	**DRIVER**	**ELECTRICAL**	**MOUNTING**	**FINISH**	**OPTIONS**
120 - 120V **277** - 277V	**DMX** - to specify see pages 5 to 10 **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	**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 **CF#** - custom finish specify RAL#	**FU** - fuse **FWC** - flexible whip cable (6' std) **AR** - air return (for grid only) **CP** - Chicago Plenum **CU** - custom

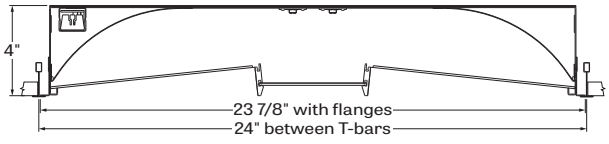
DMX WALL CONTROLS
To specify see pages 5 to 10

See page 2 for ordering code detailed information

CROSS SECTION

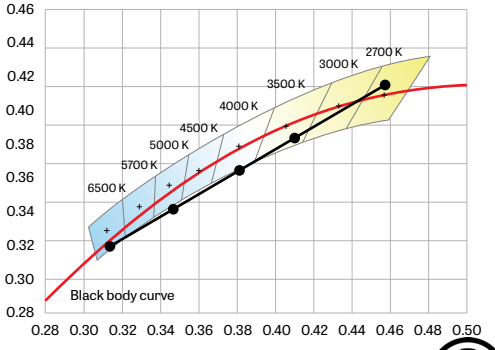


NOVRF - nova flat t-bar 9/16



NOVRS - nova slope t-bar 9/16

ANSI C78.377-2015



CHROMAWERX TUNABLE WHITE AND DIM TO WARM

OPTICS

CENTER LENS - PRECISION MICRO-PRISM-OPTIC (PMO) - utilizes a specially designed catadioptric lens that combines refraction and internal reflection. The square-base prism is 24% the size of those used in a high-performance fluorescent lens. The exclusive two-dimensional array of prisms is designed to eliminate the glare found at higher viewing angles and as such, enables a glare cut-off at a 45° viewing angle.

The acrylic material itself is untinted, relying entirely on catadioptric control for effective source obscuration. A highly efficient TIR process at the acrylic-air interface on the prism surfaces redirects incident light with less than a 0.1% loss per reflection. As a result, these LumenWerx optics attain a high optical efficiency greater than 90%, while maintaining visual comfort at normal viewing angles and presenting a pleasing luminous appearance.

SIDE LENS - HIGH EFFICIENCY LAMBERTIAN OPTIC (HLO) - shielding of diffusing 0.075" thick acrylic with up to 88% transmission and good source obscuration.

LIGHT SOURCE - LED

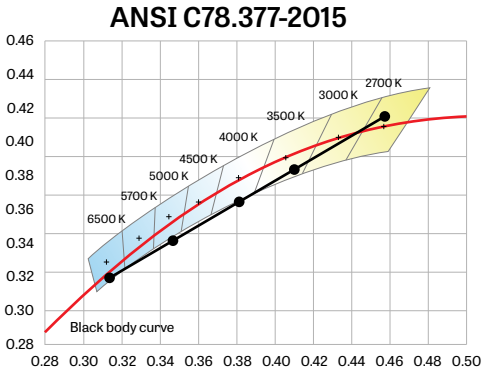
LED output	Color Temp	Watts	Nominal Delivered Lumens	Efficacy LPW
low output	4000K	20	2300	117
medium output	4000K	29	3200	112
high output	4000K	38	4200	110

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

Custom 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.

CHROMAWERX - TUNABLE WHITE



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)

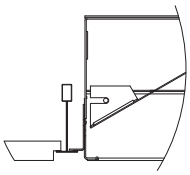
Factory-set, adjustable output current LED driver with universal (120-277VAC) input. Using a single 0-10V control signal, the light output warms in color temperature as it dims down to 1% and 2200K. At maximum driver load, efficiency<86%, PF>0.9, THD<20%.

0-10V (Duo)

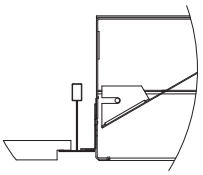
Factory-set adjustable output current LED driver with universal (120-277VAC) input. Controlled via two individual 0-10V signals, one for setting light output down to a minimum of 1% and the other for adjusting the CCT (default range of 2700K-6500K). Rated life of 50,000 hours at 70°C maximum driver case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

MOUNTING OPTIONS

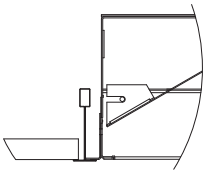
Recess mount into exposed or concealed T-Bar or Tegular grid ceiling



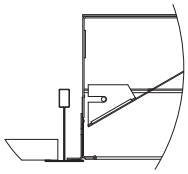
TG9 - tegular 9/16"



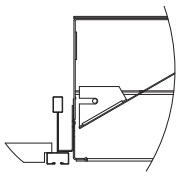
TG15 - tegular 15/16"



TB9 - t-bar 9/16"

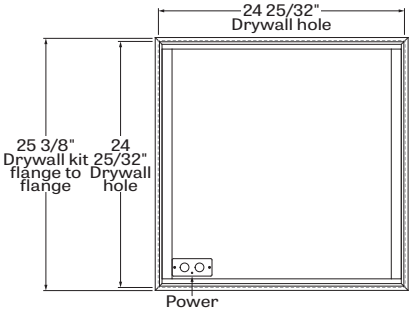


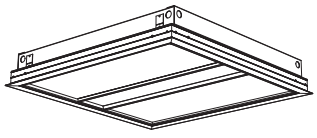
TB15 - t-bar 15/16"



ST - screw slot t-bar

A separate kit for mounting fixtures into drywall ceilings





DF - drywall kit

FINISH

Interior reflectors - 95% reflective, matte white powder coating

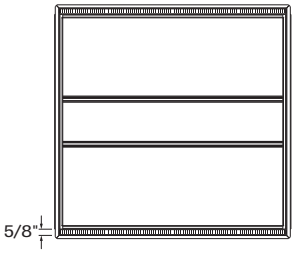
Exterior - matte white powder coating.

Custom finish is also available.

CHROMAWERX TUNABLE WHITE AND DIM TO WARM

OPTIONS

The air return option consists in a discreet, yet efficient, slot pattern integrated into the side flanges of the luminaire, allowing the airflow to exhaust into plenum space, creating a clean, pleasant look of the ceiling.



Air Return

CONSTRUCTION

Housing - Die formed cold rolled sheet steel 20 gauge thick, matte white powder coating.
Reflectors - Cold rolled steel 0.030" thick precisely die formed, 95% reflective matte white painted.
Interior brackets - Die formed cold rolled sheet steel 20 gauge thick.
Center basket - Extruded Aluminum 0.07" nominal, matte white and lens made in clear PMMA precisely formed into optical micro-structures forms.
Side lenses - Frost impact acrylic lens 88% transmissive.
Drywall kit - Extruded Aluminum 0.07" nominal, matte white powder coating.

WEIGHT

Nova 2x2: 16.52lbs.+2.51lbs. (drywall kit) - 7.5kg+1.14kg (drywall kit)

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.

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.

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.

Do you require a wall controller provided by Lumenwerx?

YES

DMX controller supplied 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. ✓

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


1 Zone


2 Zones

1 - 4 Zones

5 or more Zones

Do you have more than 32 drivers in total?

NO

YES

To Calculate # of drivers

How to calculate the required number of drivers:

per 4' fixture	per 4' fixture
Driver 1x driver	Driver Driver 2x driver
Direct only	Direct high output

Order a standard Lumenwerx wall controller.

WALL CONTROLLER

WCW - wall controller white
WCB - wall controller black

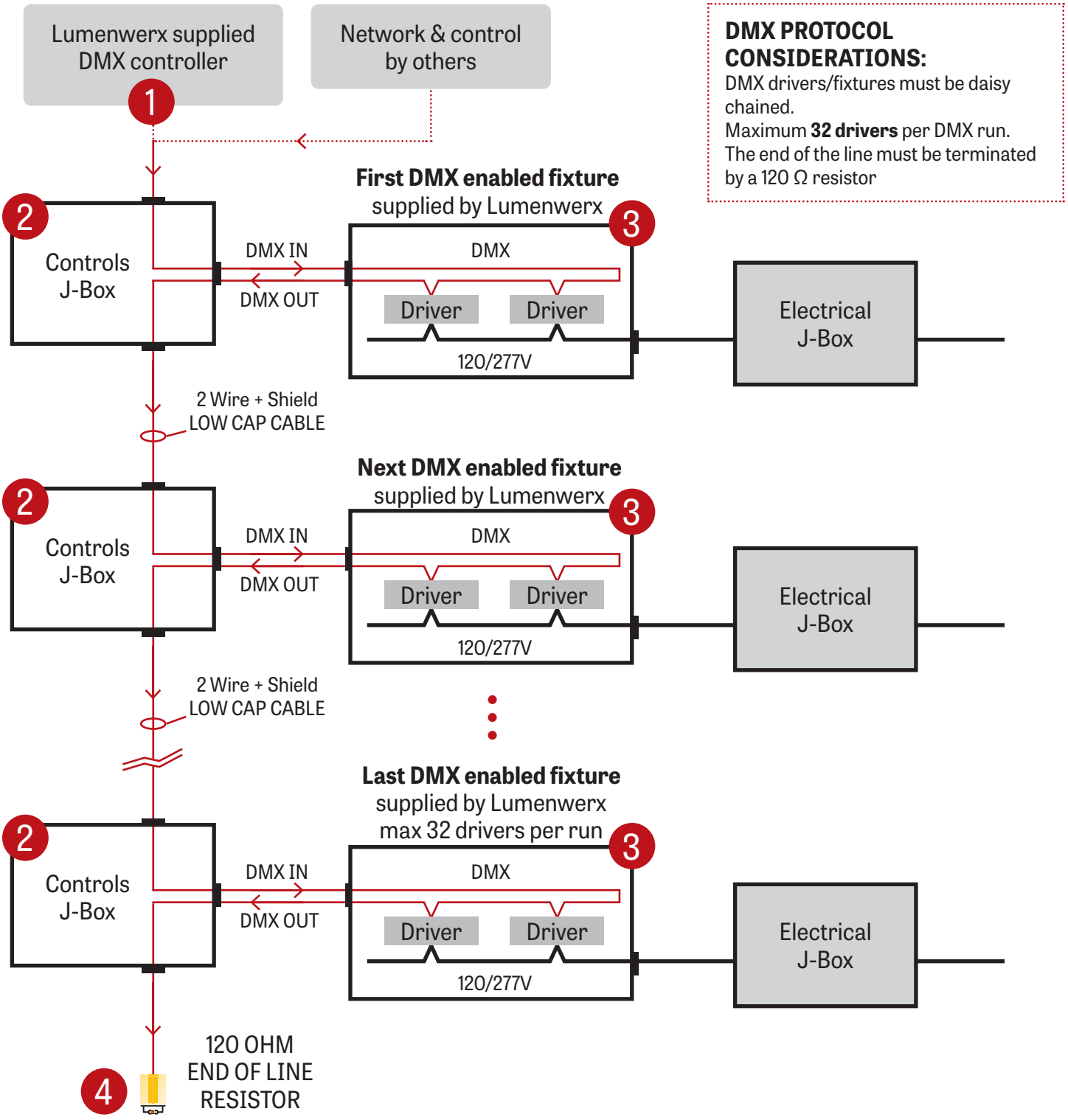
Add the control code at the end of your order code.
Please provide a fixture layout or RCP (Reflected Ceiling Plan) showing the locations of the DMX fixtures, zones and the DMX wall controller.
Refer to your DMX integrator for the installation. ✓

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. ✓

CHROMAWERX TUNABLE WHITE

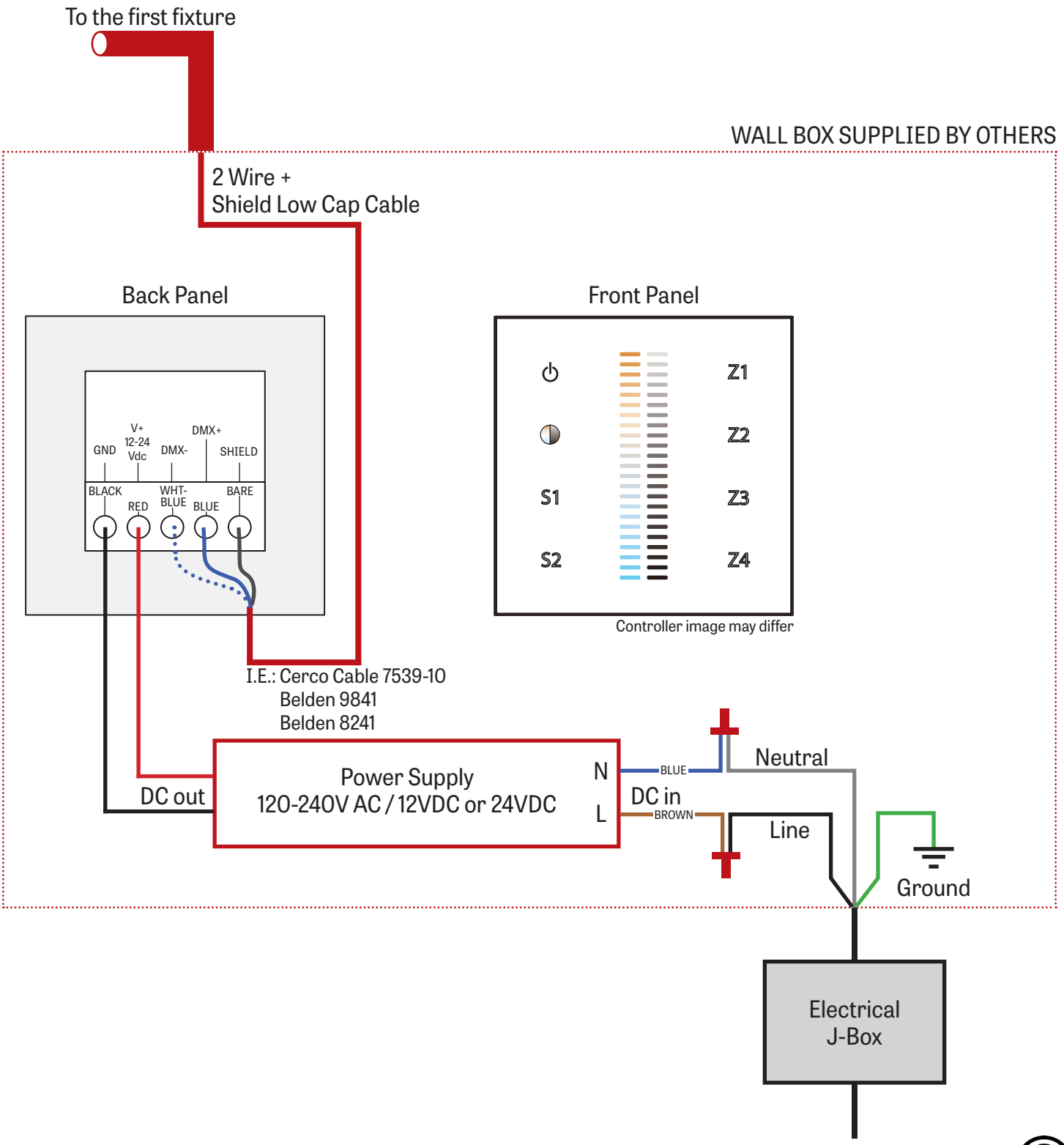
GENERIC DMX NETWORK ARCHITECTURE



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

CHROMAWERX TUNABLE WHITE

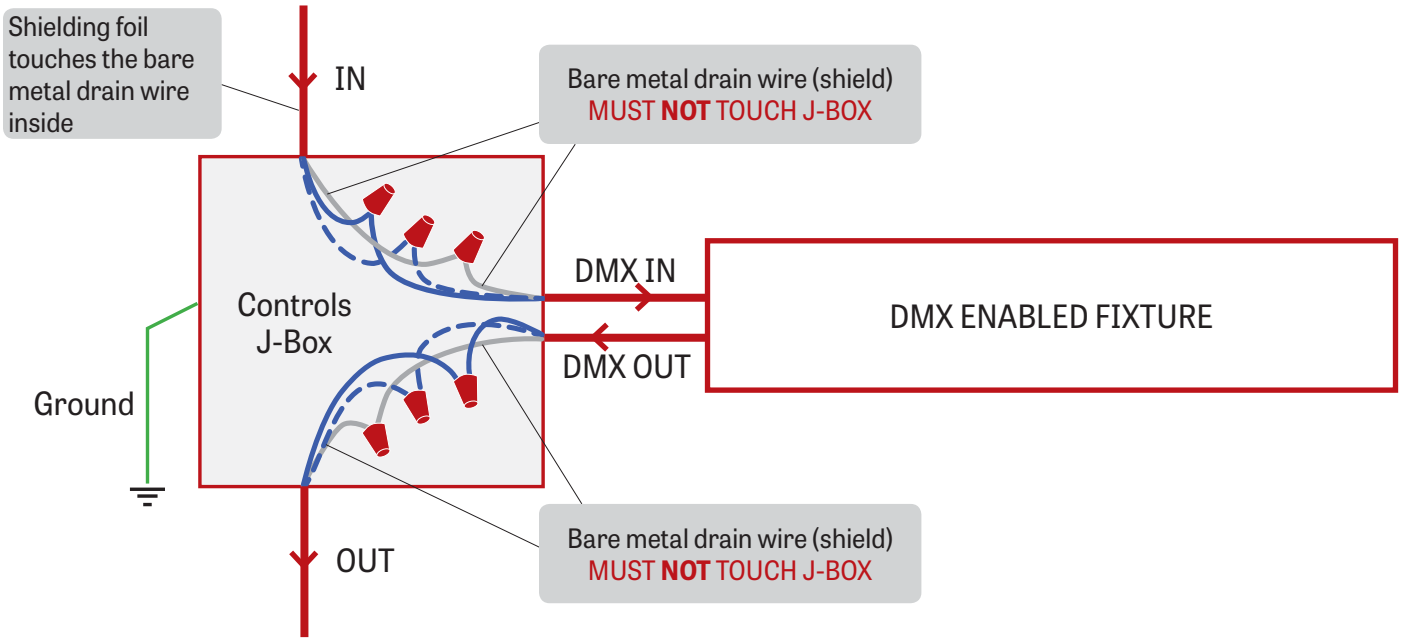
1 LUMENWERX SUPPLIED DMX CONTROLLER



Intertek

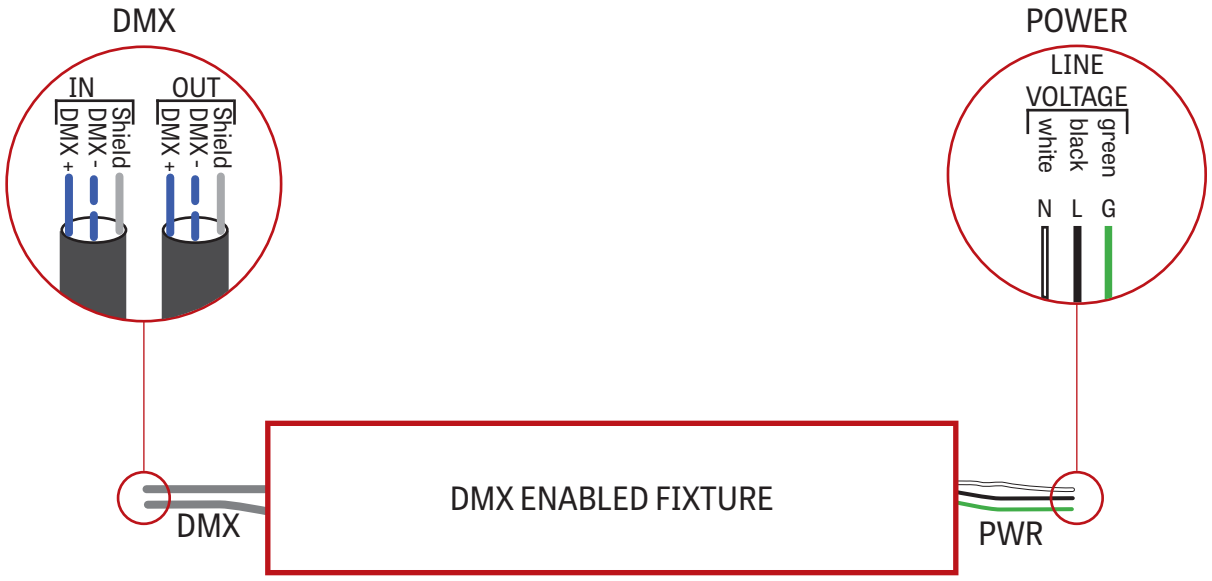
2 J-BOX DMX DAISY CHAIN DETAIL

Low capacitance DMX Cable from Previous Fixture



Low capacitance DMX cable to next fixture

3 DMX CONNECTION RECESSED & SURFACE



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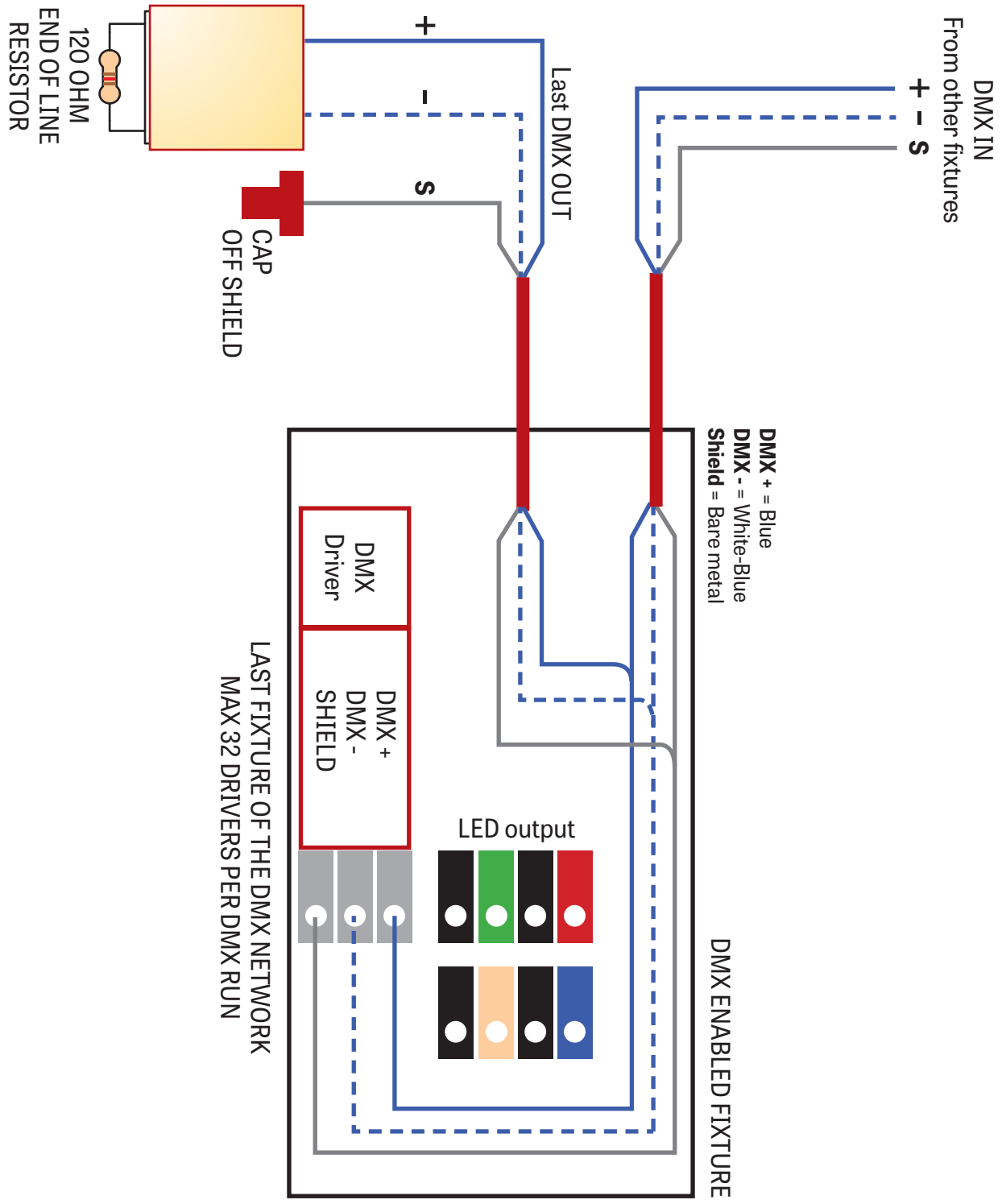
4 DMX LAST FIXTURE DETAIL



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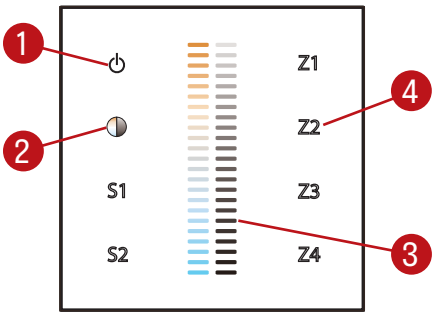
DMX WALL CONTROLLER

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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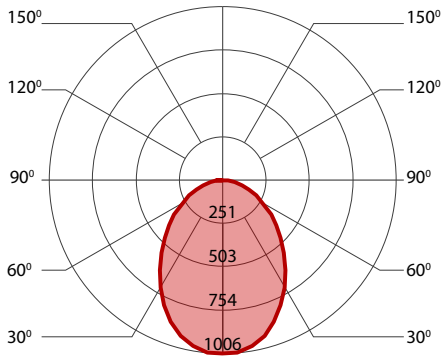
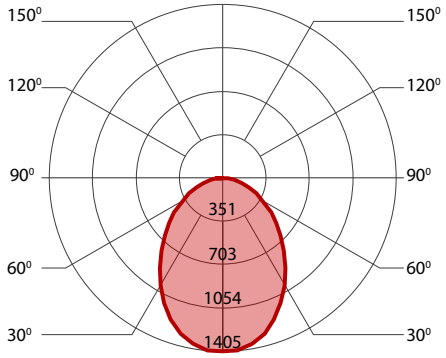
2300 LUMEN AT 80CRI - LOW OUTPUT



PERFORMANCE

LED output	Color Temp	Watts	Nominal Delivered Lumens	Efficacy LPW
low output	2700K	21.5	2300	107
low output	3000K	20	2300	115
low output	3500K	20	2300	115
low output	4000K	20	2300	117
low output	6500K	19	2300	121

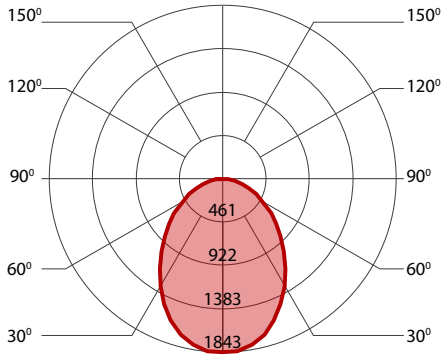
3200 LUMEN AT 80CRI - MEDIUM OUTPUT



PERFORMANCE

LED output	Color Temp	Watts	Nominal Delivered Lumens	Efficacy LPW
medium output	2700K	31	3200	103
medium output	3000K	29	3200	110
medium output	3500K	29	3200	110
medium output	4000K	29	3200	112
medium output	6500K	27.5	3200	117

4200 LUMEN AT 80CRI - HIGH OUTPUT



PERFORMANCE

LED output	Color Temp	Watts	Nominal Delivered Lumens	Efficacy LPW
high output	2700K	41.5	4200	101
high output	3000K	39	4200	108
high output	3500K	39	4200	108
high output	4000K	38	4200	110
high output	6500K	36.5	4200	115