TOGO 36 PENDANT

CHROMAWERX CHROMAWERX

5 YEAR WARRANTY

DESCRIPTION

Togo provides generous ambient illumination from a minimal and elegant ring form. Nestled in a crisp 4" high opaque band, the distinctive, annular diffuser glows inwardly. The diffuser's softly rounded compound curve lends Togo a slender appearance. Available in 18", 24", 36" and 48" diameters. Togo delivers efficient, widespread, direct/indirect illumination (65/35) with spacing criteria of 1.6 and a range of light outputs.

Togo's outer housing of extruded aluminum is welded and buffed to a seamless band that can be painted in our nine standard finishes, or a RAL custom color, to coordinate with virtually any interior finish.

The Togo driver mounts remotely, either above or below the ceiling. In addition to a conventional power cord, Togo also offers an ultra-clean mounting detail with integrated and power suspension cables.

Controls include dimming to 1% in 0-10V, line voltage, and digital protocols. Night light and emergency circuiting are available.

Togo supports the full range of Chromawerx Sola, Duo, and Quadro options for Tunable White and RGBW expressive color.

Please see code on page 2 for all nine standard finishes.

ETL Listed · Intertek

TOGO 36 PENDANT

PROJECT: _____

TYPE: _____

NOTES: _____

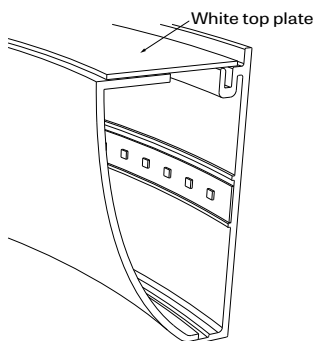| TOGP	36IN	ULO		90
LUMINAIRE ID	**SIZE**	**OPTIC**	**LIGHT SOURCE**	**CRI**
TOGP - Togo Pendant	**36IN** - ⌀ 36"	**ULO** - Uniform Lambertian Optic	**SW** - Static white	**90** - 90CRI
			SOLA - Dim-to-warm single channel control 22K to 35K **DUO** - Tunable white 2-channel control 27K to 65K **QUADRO** - Four-channel RGB with 3500K white	

				1
LUMEN PACKAGES	**COLOR TEMP.** [1]	**VOLTAGE**	**DRIVER**	**ELECTRICAL**
####lm - L3800lm - M5300lm - H6800lm **L**-Low, **M**-Medium, **H**-High, consult factory for other (static white, Duo and Sola only) **81W** - 81W output (Quadro only)	**27** - 2700K **30** - 3000K **35** - 3500K **40** - 4000K [1] Not applicable for Duo, Sola and Quadro.	**120** - 120V **277** - 277V **UNV** - 120V-277V **347V** [2] - 347V [2] Available with D1 and RDB only.	Static white **D1** - 1% 0-10V **DA** [3] - DALI **LDE1** [3] - Lutron Hi-lume 1% Eco Sola **SD1** - Single 0-10V input Duo **DD1** - Dual 0-10V input for CCT/intensity **DA** [3] - DALI **PSQ0** [3] - Lutron T-series 1% Tunable White **DMX** [3][4] - DMX Quadro **DMX** [3][4] - DMX [3] On-site commissioning is required. [4] To specify, see pages 7 to 13.	**1** - 1 circuit

		MOUNTING			**FINISH**	**OPTIONS**
DRIVER BOX [5]	**CANOPY FINISH**	**POWER**		**HEIGHT** [10]	**W** - Matte white **AL** - Aluminum **BK** - Black **RAL 1028** - Yellow **RAL 2004** - Orange **RAL 3020** - Red **RAL 4010** - Magenta **RAL 5002** - Blue **RAL 6018** - Green **CF#** - Custom finish, specify RAL#	**TPF** - Top plate finish, specify if differs from white
RCD [6][7] - Round Canopy Driver Box **RDB** - Remote Driver Box [5] For more information, see page 3. [6] RCD is not available with Sola and Duo. [7] RCD is not available with DMX or with 347V. Consult factory for DALI or Lutron drivers.	**AL** - Aluminum **B** - Black **W** - Matte white **CF#** - Custom finish, specify RAL#	**POC** [8][9] - Integrated suspension power-over-aircraft cable **BAC** - Black power cord + aircraft cable **WAC** - White power cord + aircraft cable [8] For more information, see page 3. [9] Not available with DMX.		**##IN** - Distance from the canopy to the fixture in inches [10] Minimum mounting heights: • With RCD: 26.75" • With RDB: 29"		
		See website for the Pendant Mounting Guide				

See page 3 for ordering code detailed information

2018 PROGRESS Report SELECTION

DMX WALL CONTROLS
To specify see pages 7 to 13

3D CROSS SECTION

White top plate

TOGP - Togo Pendant

CROSS SECTION

4"

31 3/8"
35 5/8"
2 1/8"

TOGP - Togo Pendant

ETL LISTED c us
Intertek

MOUNTING OPTIONS

All mounting options below are available with either conventional aircraft cables and jacketed Class II power cord (CPC), or elegant integral power-over-aircraft cables (POC).

ROUND CANOPY DRIVER BOX
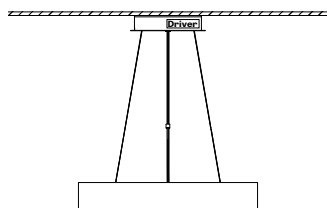
RCD - Round Canopy Driver Box
Driver is furnished in a 6" or 9" diameter, 2" deep enclosure that also supports suspension and power cables. Enclosure is available in standard finishes (see ordering code).

REMOTE DRIVER BOX IN DRYWALL
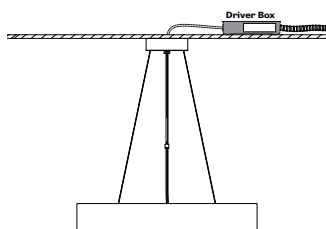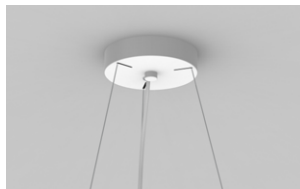
RDB - Drywall Remote Driver
Driver is in a 20"x4"x2" enclosure with brackets for mounting to ceiling joists or other supporting members. The 5 1/2" diameter x 1 5/8" deep wiring compartment canopy conceals and supports suspension and power cables. It is available in standard finishes (see ordering code).

REMOTE DRIVER BOX IN GRID
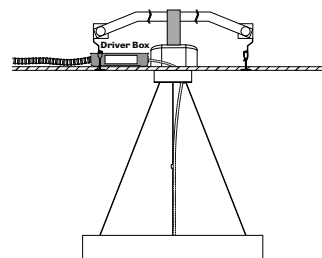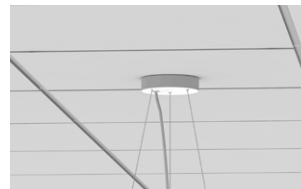
RDB - Ceiling Remote Driver for grid ceiling
Driver is in a 20"x4"x2" enclosure with brackets for mounting to ceiling runners. The 5 1/2" diameter x 1 5/8" deep wiring compartment conceals and supports for suspension and power cables.

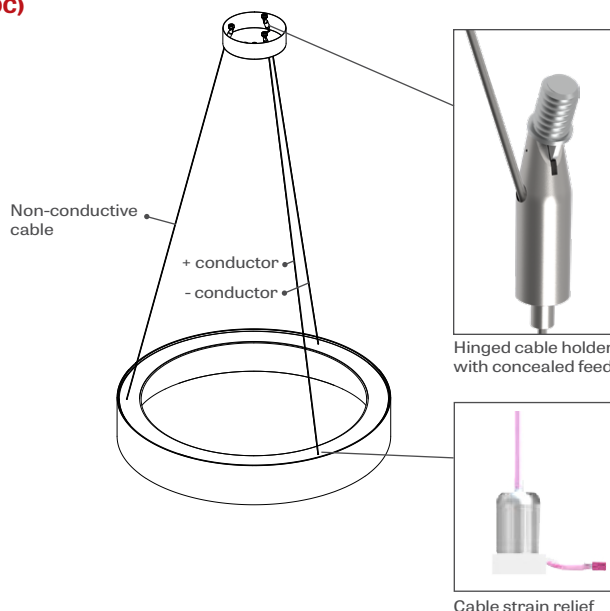## INTEGRATED SUSPENSION AND POWER-OVER-AIRCRAFT CABLE (POC)

The integrated suspension and power-over-aircraft cable option provides an elegant mounting option without the familiar jacketed power cord.

Current from the driver to the LED arrays flows through seven-strand galvanized copper conductors. A dielectric polymer coating insulates the cable, which is supported by insulated holders at the ceiling and luminaire mounting plate.

Our standard integrated power-over-aircraft cable supports all dimming and control protocols available through the driver options without additional conductors.

Seven-strand galvanized copper conductors. Cable diameter - 0.06" (1.55mm)

Non-conductive cable

+ conductor
- conductor

Hinged cable holder with concealed feed

Cable strain relief

OPTIC

Uniform Lambertian Optic (ULO) - Thermoformed from seamless impact-modified white PMMA, the ULO optic provides even luminosity, with up to 88% transmission. The tapered, compound curve minimizes the luminaire form.

Combined with the LED array running around the inside of the supporting band, the annular form and ULO optic creates a widespread 67% direct and 33% direct light distribution with spacing criteria of 1.6.

LIGHT SOURCE - LED - STATIC WHITE

Custom array of mid-flux LEDs are mounted directly to the housing for optimal thermal performance. Available in 2700K, 3000K, 3500K, and 4000K with 90 CRI with elevated R9 value. Color consistency is maintained to 3 SDCM. LEDs are operated at a reduced drive current to optimize efficacy and lumen maintenance. All LEDs have been tested in accordance with IESNA LM-80-08 and results have shown L80 lumen maintenance are greater than 60,000 hours. Absolute product photometry is measured and presented in accordance with IESNA LM-79, unless otherwise indicated.

PERFORMANCE AT 4000K

| LED output	Color Temp	Watts	Nominal Delivered Lumens	Efficacy LPW
low output	4000K	39	3800	97
medium output	4000K	56.5	5300	94
high output	4000K	74.5	6800	91

CHROMAWERX - TUNABLE WHITE

Custom linear 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 2700K-3500K is controlled synchronously with intensity. Color consistency between fixtures is maintained within 3SDCM. LEDs are operated at a 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 are greater than 60,000 hours. Absolute product photometry is measured and presented in accordance with IESNA LM-79, unless otherwise indicated.

Chromawerx Sola is a 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% full power to 2200K at 5% full power.

Chromawerx Duo is a two-channel control. It uses analog or digital protocols for synchronous control of both warm and cool LED arrays, enabling 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.


ANSI C78.377-2015
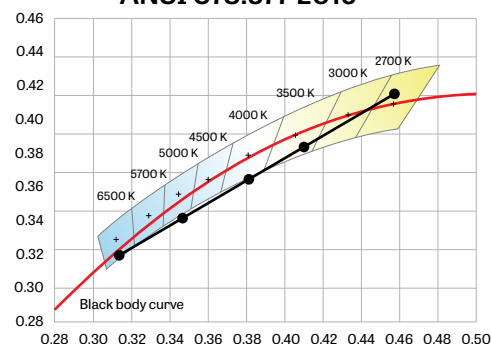
CHROMAWERX - RGBW

Chromawerx Quadro is a four-channel control that operates an RGBW LED array and addresses the need for more expressive color in architectural applications. The DMX driver supports familiar programming tools for both dynamic multi-hued color and precise white color point control. While a typical user interface will be a DMX controller by others, Lumenwerx also offers a simple control station for stand-alone color changing applications.

CIE 1931 Chromaticity space
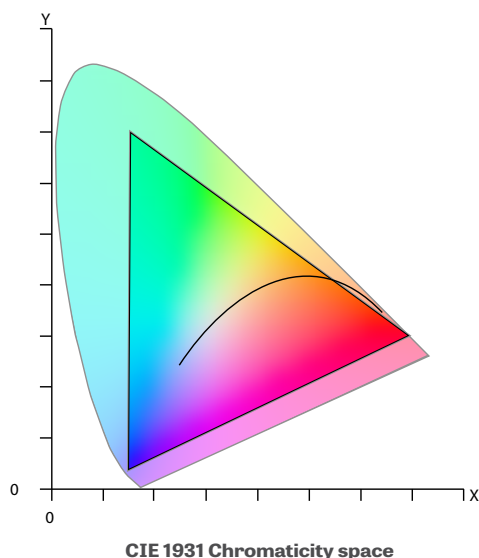
ELECTRICAL REMOTE

All remote drivers are furnished with factory enclosure for recessed installation in drywall and grid ceilings.

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 fixture 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 the intensity of the fixture down to a minimum of 1% and the other for adjusting the CCT of the fixture (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.

DMX (Quadro & 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, either two channels of LEDs (warm-white & cool-white) for Duo or four channels of LEDs (Red/Green/Blue/White) for Quadro 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%.

FINISH

Interior - 95% reflective, matte white powder coating
Exterior - Side trim is offered in a range of vibrant color powder coatings.

CONSTRUCTION

Housing - Rolled and seamlessly welded aluminum extrusion 0.125 in thick, wide variety of colored powder coating
Diffuser - Uniform Lambertian Optic, thermoformed impact modified acrylic, completely enclosed

WEIGHT

Togo 36 - 12lbs - 5.4kg

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.

TOGO 36 PENDANT

3800 LUMEN AT 90CRI - LOW OUTPUT
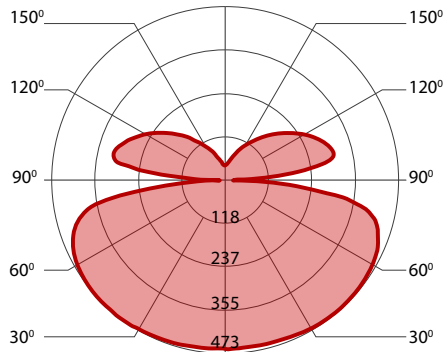
PERFORMANCE

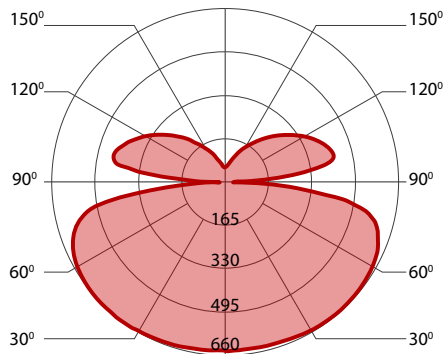| LED output	Color Temp	Watts	Nominal Delivered Lumens	Efficacy LPW
low output	2700K	43	3800	88
low output	3000K	41	3800	92
low output	3500K	40	3800	95
low output	4000K	39	3800	97
low output	5000K	37	3800	103
low output	6500K	37.5	3800	102

5300 LUMEN AT 90CRI - MEDIUM OUTPUT

PERFORMANCE

LED output	Color Temp	Watts	Nominal Delivered Lumens	Efficacy LPW
medium output	2700K	61.5	5300	86
medium output	3000K	59.5	5300	89
medium output	3500K	57.5	5300	92
medium output	4000K	56.5	5300	94
medium output	5000K	53	5300	100
medium output	6500K	53.5	5300	99

6800 LUMEN AT 90CRI - HIGH OUTPUT
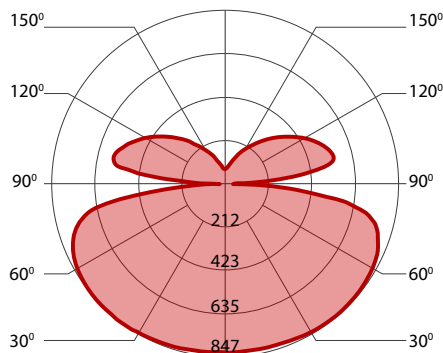
PERFORMANCE

LED output	Color Temp	Watts	Nominal Delivered Lumens	Efficacy LPW
high output	2700K	82	6800	83
high output	3000K	78	6800	87
high output	3500K	76.5	6800	89
high output	4000K	74.5	6800	91
high output	5000K	70	6800	97
high output	6500K	71	6800	96

TOGO 36 PENDANT

CHROMAWERX TUNABLE WHITE AND DIM TO WARM

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 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 fixture

| **1 x** Driver | / | **50W per side** |

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 costs and equipment will be required. ✓

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

Intertek

CHROMAWERX QUADRO - RGBW

QUADRO 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 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 fixture

1 x Driver / **5000lm per side**

To Calculate # of drivers

| 1 Zone | 2 to 3 Zones | 4 or more Zones |

Do you have more than 32 drivers in total?

NO   **YES**   **NO**   **YES**

Order a standard Lumenwerx wall controller <u>type 1</u>.

WALL CONTROLLER

WC1W - Single zone wall controller white
WC1B - Single zone 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 costs and equipment will be required. ✓

Order a standard Lumenwerx wall controller <u>type 2</u>.

WALL CONTROLLER

WC2W - 3 zone wall controller white
WC2B - 3 zone 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 costs and equipment will be required. ✓

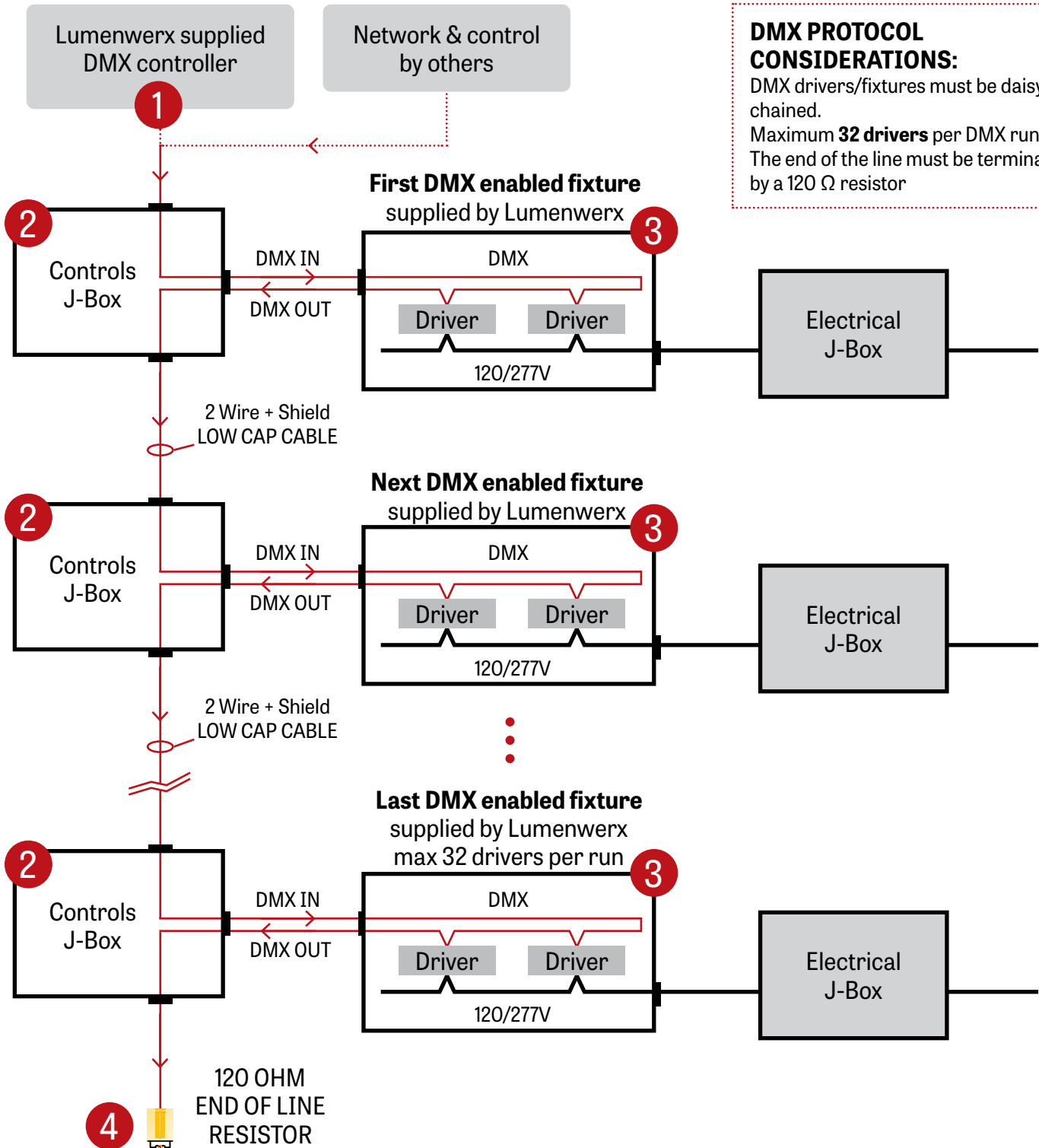Subject to factory evaluation and approval. Please contact our controls specialist at controls@lumenwerx.com
Additional costs and equipment will be required. ✓

ETL LISTED
c   us
Intertek

TOGO 36 PENDANT

CHROMAWERX TUNABLE WHITE AND RGBW

GENERIC DMX NETWORK ARCHITECTURE

Lumenwerx supplied DMX controller

Network & control by others

1

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
Intertek

TOGO 36 PENDANT

CHROMAWERX TUNABLE WHITE AND RGBW

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

V+
12-24
Vdc

DMX-

DMX+

SHIELD

BLACK

RED

WHT-
BLUE

BLUE

BARE

RGBW Front Panel

S1   S2   S3
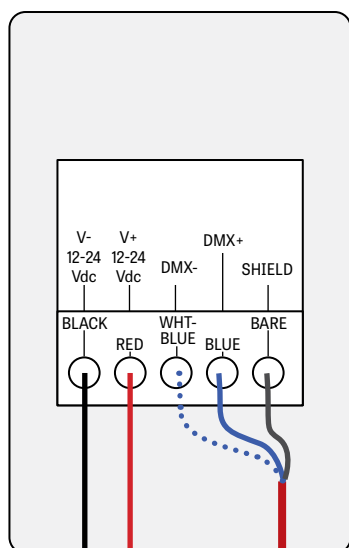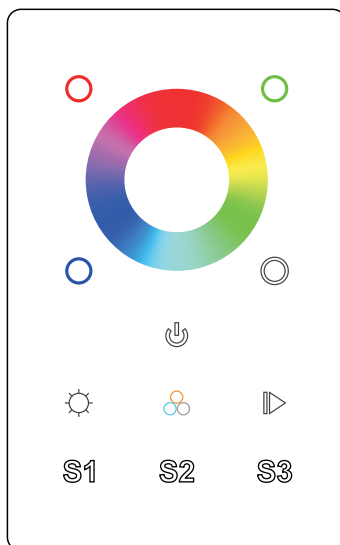
Controller image may differ

TW Front Panel

Z1

Z2

S1   Z3

S2   Z4
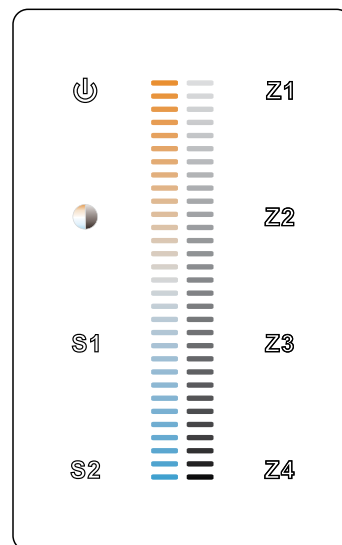
Controller image may differ

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

DC out

Power Supply
120-277VAC / 24VDC

N   BLUE   Neutral

DC in
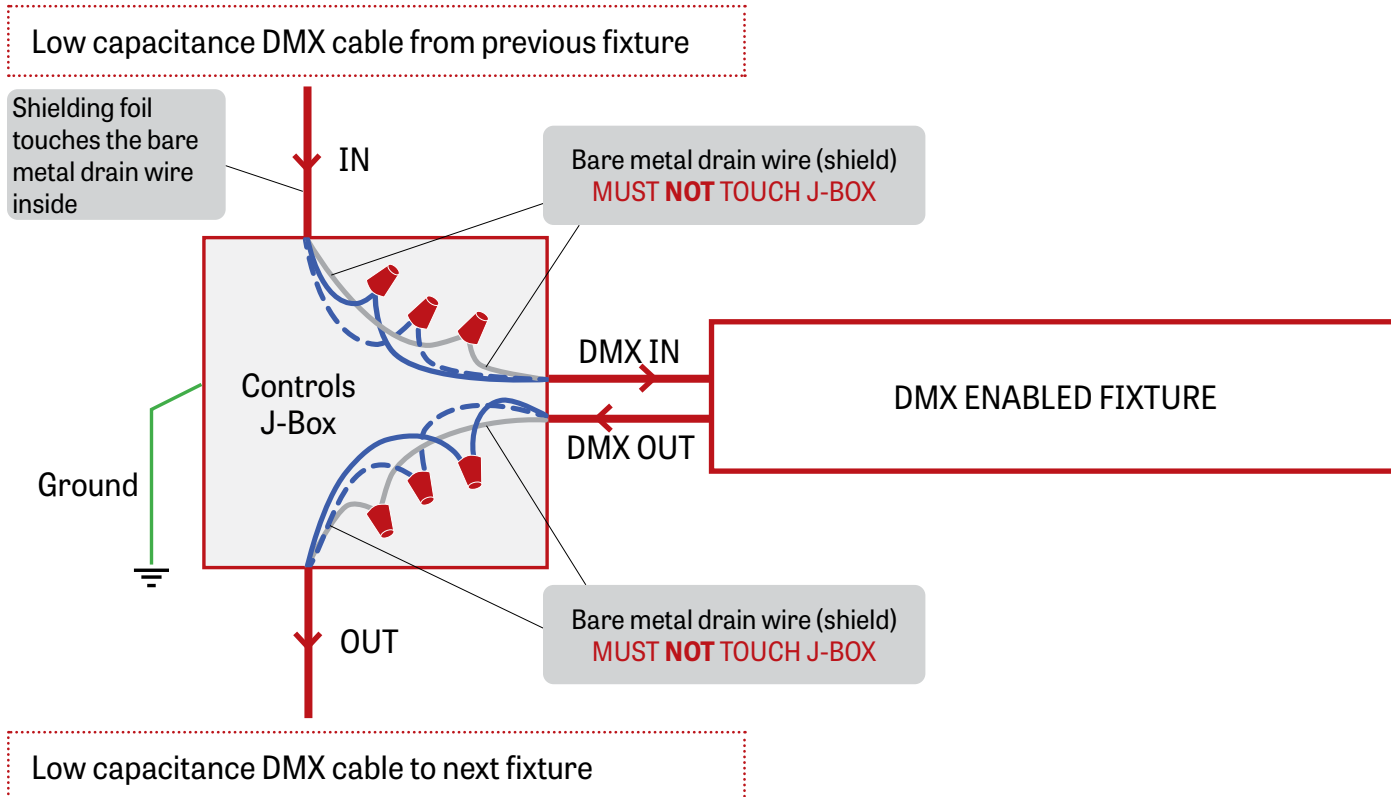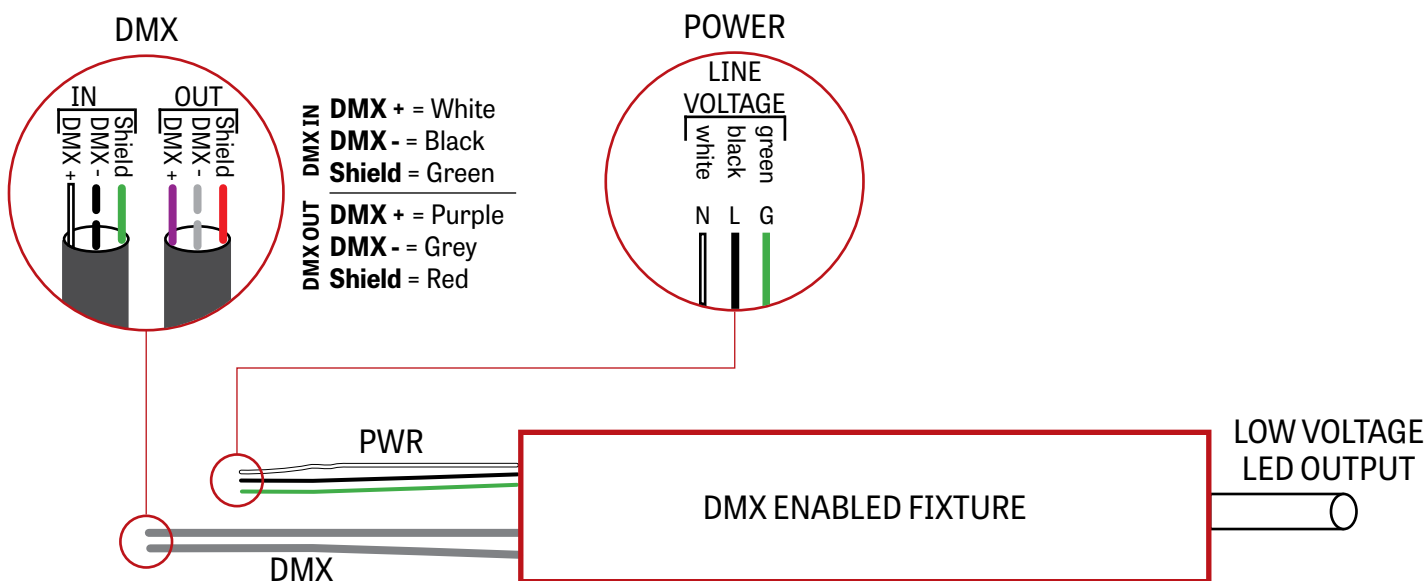
L   BROWN   Line

Ground

Electrical
J-Box

ETL
Intertek

TOGO 36 PENDANT

CHROMAWERX TUNABLE WHITE AND RGBW

2 J-BOX DMX DAISY CHAIN DETAIL
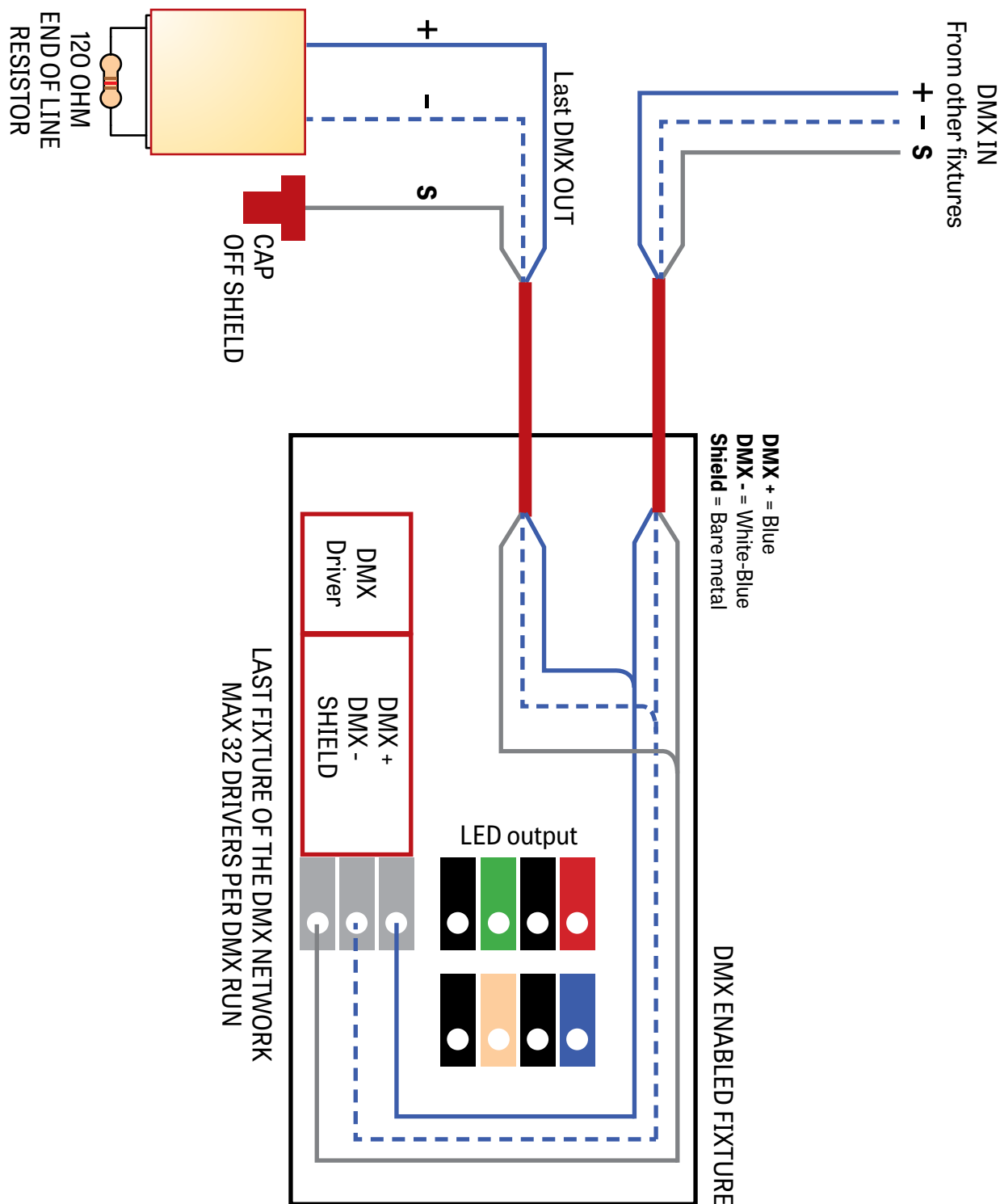
Low capacitance DMX cable from previous fixture

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 PENDANT & WALL REMOTE DRIVER

DMX

IN
Shield
DMX -
DMX +

OUT
Shield
DMX -
DMX +

DMX IN
DMX + = White
DMX - = Black
Shield = Green

DMX OUT
DMX + = Purple
DMX - = Grey
Shield = Red

POWER

LINE
VOLTAGE
white
black
green

N   L   G

PWR

DMX ENABLED FIXTURE

LOW VOLTAGE LED OUTPUT

DMX

ETL LISTED
Intertek

TOGO 36 PENDANT

CHROMAWERX TUNABLE WHITE AND RGBW

4 LAST DMX CONNECTION 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

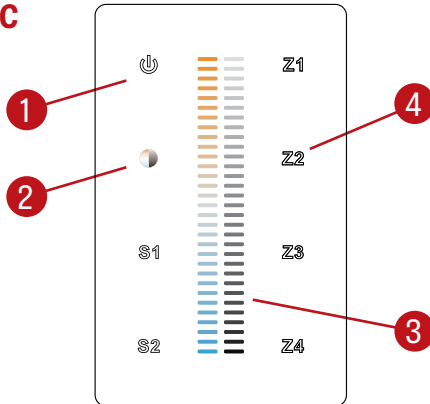LED output

DMX ENABLED FIXTURE

ETL LISTED
c us
Intertek

TOGO 36 PENDANT

CHROMAWERX TUNABLE WHITE AND RGBW

DMX WALL CONTROLLER - TUNABLE WHITE

Default DMX Addresses:

1. WARM	2. COOL

WC

|	
(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.

DMX WALL CONTROLLER - RGBW

Default DMX Addresses:

1. RED	2. GREEN	3. BLUE	4. WHITE

WC1
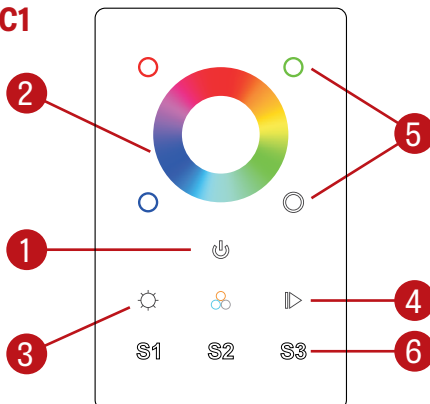
(1) Power:	Use this button to turn ON or OFF the RGBW fixture.
(2) Color Wheel:	The wheel is used to rapidly select a color (RGB colors only).
(3) Brightness (RGB):	Hold down this button to either increase or decrease the brightness of the current RGB selection. White will not be affected by the RGB brightness button.
(4) Color Cycle:	This button will start an animation, rotating between reds, greens, and blues, the arrows allow the user to speed up or slow down the animation.
(5) Individual Colors:	By pressing and holding a color, it will be possible to brighten or dim it. Quickly pressing a color will either turn it OFF or turn it ON to its previous dim level. White: In order to activate or deactivate and dim the White channel, the White button needs to be used.
(6) Scenes:	By holding down one of the scenes button, the current color selection is saved. It can be later accessed by quickly pressing on one of the Scene buttons.

WC2
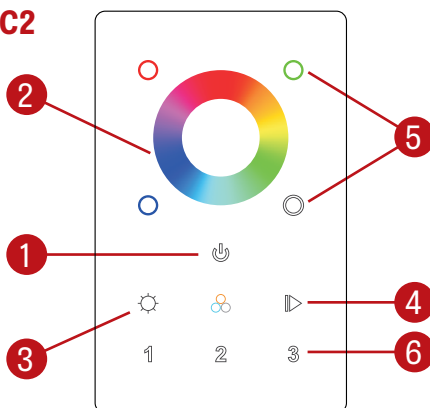
(1) Power:	Use this button to turn ON or OFF the RGBW fixture.
(2) Color Wheel:	The wheel is used to rapidly select a color (RGB colors only).
(3) Brightness:	Hold down this button to either increase or decrease the brightness of the current RGB selection. White will not be affected by the RGB brightness button.
(4) Color Cycle:	This button will start an animation, rotating between reds, greens, and blues, the arrows allow the user to speed up or slow down the animation.
(5) Individual Colors:	By pressing a color, it will be possible to brighten or dim that specific color. White: In order to activate or deactivate and dim the White channel, the White button needs to be used.
(6) Zone:	By holding down one of the zone buttons, a zone can be selected and controlled.