# CHROMAWERX

A simple and flexible way to tailor your space

Powered by LED technology, the world of lighting is changing fast. For a long time, dynamic lighting – both in color and intensity - was primarily theatrical. Now, there's growing interest in dynamic lighting strategies for classrooms, healthcare, and workspaces.

# CHROMAWERX

The simple, flexible, and cost effective approach to dynamic lighting in practical, architectural applications. ChromaWerx is a broad portfolio of color-changing luminaires, digital drivers, and easy-to-use controls. ChromaWerx makes dynamic lighting easy to apply.

First select the
appropriate
luminaire
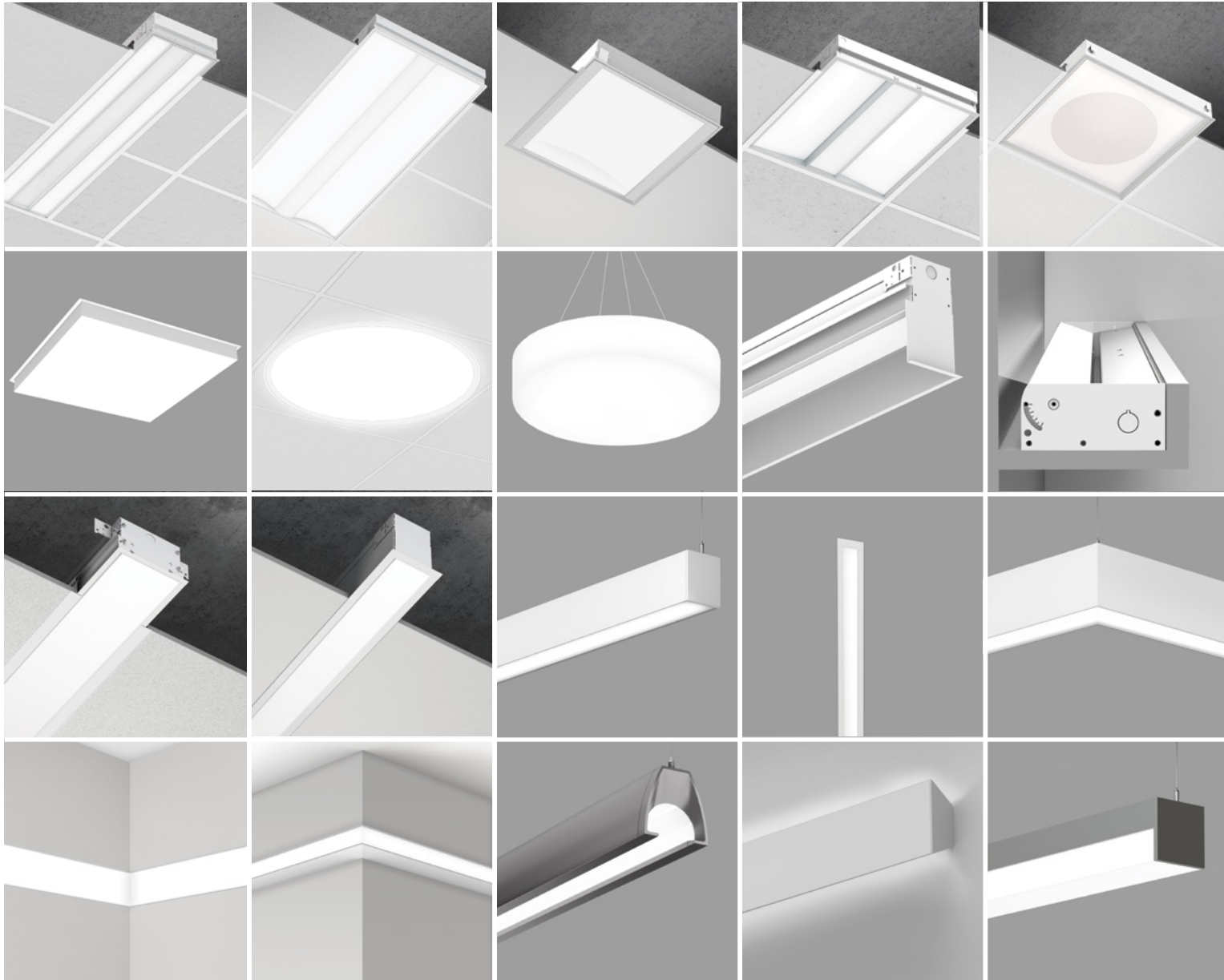
ChromaWerx technology is supported by 17 distinctive families of general area luminaires, including pendant, recessed, wall, and cove-mounted types, all with numerous optical distributions and light output options. ChromaWerx builds on the high-level of performance and reliability of standard LumenWerx luminaires, using specially populated, inter-leaved mid-flux LED boards. Apart from wall-mounted controllers, all components – color-changing LED arrays and multi-channel drivers – are integrated into the luminaire.

# LUMINAIRE FEATURES AT A GLANCE

| | SOLA | DUO | QUADRO | Recessed | Pendant | Wall | Surface | Cove | Direct | Indirect | Direct/Indirect |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | **MOUNTING** | | | | | **LIGHT DISTRIBUTION** | | |
| ALCOVE | ● | ● | | | | | | ● | | ● | |
| CAVA | ● | ● | | ● | ● | | | | ● | | ● |
| CAVA-T | ● | ● | ● | ● | | | | | ● | | |
| NOVA | ● | ● | ● | ● | | | ● | | ● | | |
| POP | ● | ● | | ● | ● | ● | ● | | ● | | ● |
| PRIMO 2x2 | ● | ● | | ● | | | ● | | ● | | |
| QUAD | ● | ● | ● | | ● | ● | ● | | ● | | |
| VEGA | ● | ● | ● | ● | | | ● | | ● | | |
| VIA 1.5 | ● | ● | ● | ● | ● | ● | ● | | ● | ● | ● |
| VIA 2 | ● | ● | ● | ● | ● | ● | ● | | ● | ● | ● |
| VIA 3 | ● | ● | ● | ● | ● | ● | ● | | ● | ● | ● |
| VIA 4 | ● | ● | ● | ● | ● | ● | ● | | ● | ● | ● |
| VIA 5 | ● | ● | ● | ● | ● | ● | ● | | ● | ● | |
| VIA PERIMETER 3 | ● | ● | ● | ● | | | | | ● | | |
| VIA PERIMETER 5 | ● | ● | ● | ● | | | | | ● | | |
| WALO | ● | ● | ● | | | ● | ● | | | | ● |

Choose the ChromaWerx
Dynamic effect that is most
appropriate for your application

**ChromaWerx luminaires are available in three dynamic effects:**
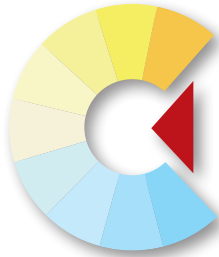
## DUO
### TUNABLE WHITE

Duo provides independent control of color temperature and light output. Duo enables the diverse settings for circadian lighting strategies developed to enhance performance and wellness in education, healthcare, and work environments.
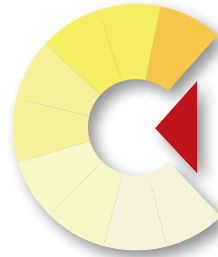
## SOLA
### DIM TO WARM

With single-channel control of warm and cool LED arrays, Sola synchronizes the dimming of light output with warming of color temperature.

## QUADRO
### RGBW

Quadro paints in full color, introducing different hues of light from subtle pastels to richly saturated tones, as well as a range of whites . . . all from a palette of architecturally integrated luminaires.
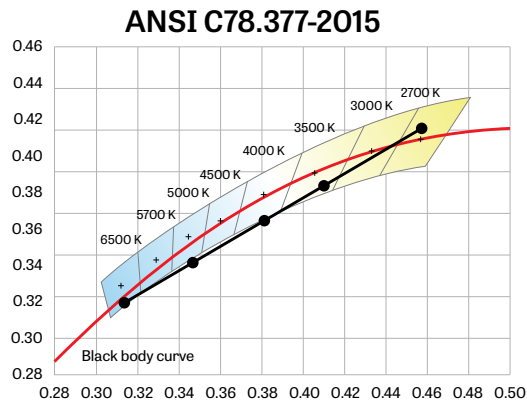
# DUO - TUNABLE WHITE



Concentration

Interaction

Relaxation

Commonly called "tunable white", ChromaWerx Duo is a two-channel system that provides the range of warm (2700K) to cool (6500K) color temperature for strategies to help entrain circadian rhythms, stimulate alertness, and compensate for jet lag, among other applications.

## ANSI C78.377-2015



The ChromaWerx drivers (with either DMX or DALI protocols) operate the LED arrays at reduced drive current to optimize efficacy and lumen maintenance. Drivers are programmed to limit maximum light output and power usage across all color temperatures. ChromaWerx output and efficacy at 4000K is comparable to

standard LumenWerx luminaires. From this baseline, ChromaWerx output varies with color temperature, from about 91% (at 2700K) to 105% (at 6500K). Lumen maintenance for all ChromaWerx options is better than L80 at 60,000 hours.

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

Color consistency among ChromaWerx Duo and Sola luminaires is maintained to within 3 SDCM. CRI is above 80 or 90, as specified. ChromaWerx Duo can be controlled by either DMX or DALI controls, depending on the driver, with dimming capability down to 1%.

# SOLA



ChromaWerx Sola is single-channel system that dims output while warming the color temperature in a pre-determined relationship. Simple 0-10V analog control sends a common signal to dual-output drivers, which are programmed to adjust the interleaved warm/cool LED array to synchronize color with output.

Dimming range is programmable as a custom factory option, but the default option runs from 3500K at 100% of full power to 2700K at 5% of full power. CRI is maintained above 80 throughout the dimming range.



Color rendering index in relation to light intensity
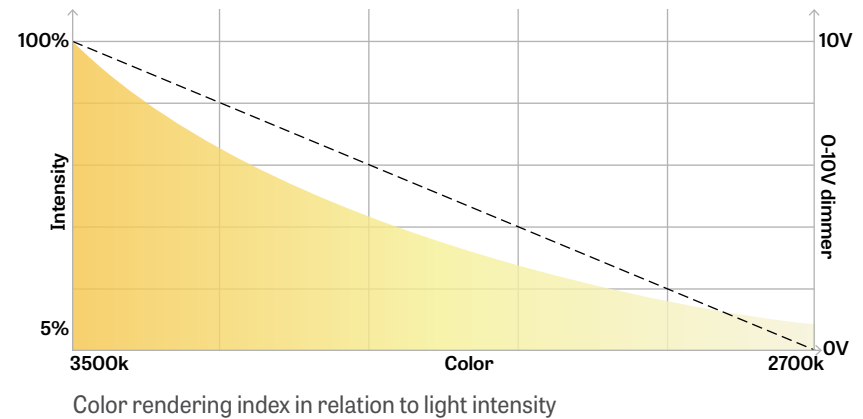
# QUADRO - RGBW

ChromaWerx Quadro is a four-channel system that operates an RGBW LED array and addresses the need for more expressive color in architectural applications. The white LED provides a constant 3500K white light. The RGB LEDs are tightly binned for excellent color control between fixtures. Dimmable single-color luminaires are also available.

The DMX driver supports familiar programming tools for both dynamic multi-hued color and precise white color point control, with dimming capability to 1%. 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.

The above diagram overlays the full gamut of colors attainable with the RGBW on top of the CIE 1931 color space. Any color point inside of the triangle can be obtained by setting the correct output levels for each of the individual red, green, blue, and white channels.



**CIE 1931 Chromaticity diagram**
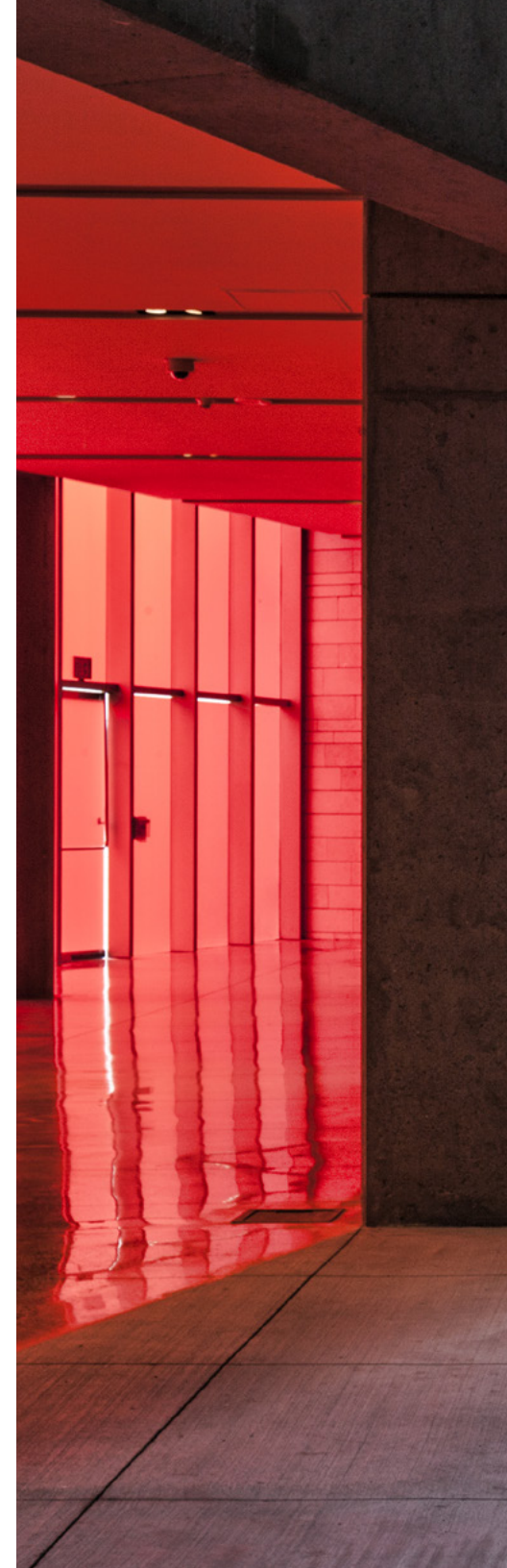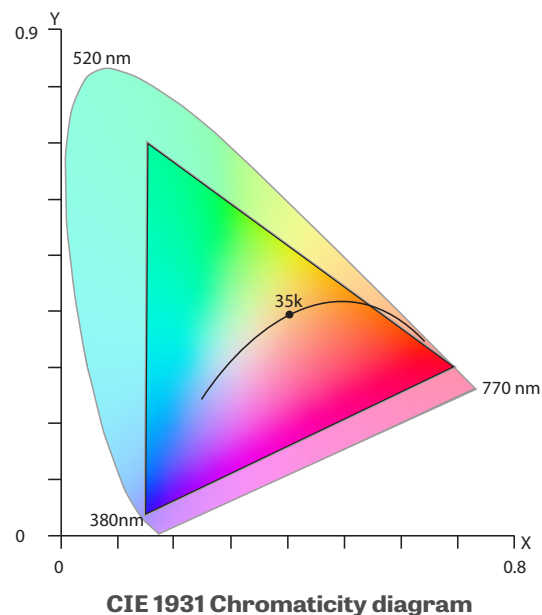
## Finally, select your control option

## CHROMAWERX PROTOCOLS & CONTROLS

LumenWerx offers several control options for ChromaWerx, sourced from specialized controls manufacturers. These devices permit convenient stand-alone control over ChromaWerx luminaires. Alternatively, ChromaWerx luminaires can be controlled by standard third-party controllers by others.

### 0-10V

A regular 0-10V protocol can control ChromaWerx Sola and Solid Colors in Quadro. Both can be controlled by standard 0-10v dimmers (by others).



0-10 DIMMER
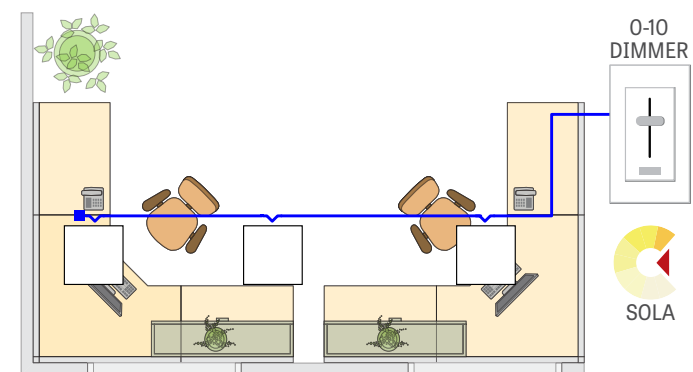
SOLA

Shown with ChromaWerx Sola

**DMX**

The DMX protocol is a well-established standard for theatrical and show business lighting. DMX enabled fixtures can be controlled over a shielded 2 wire communication BUS allowing unprecedented flexibility. With DMX, many devices on the network can have the same address, permitting large arrays of fixtures to be controlled from a single address. Zones can be determined on the same network through Remote Device Management (RDM) readdressing.

For Quadro, 4 addresses are required per control zone, where 2 are required for Duo. The physical network architecture between fixtures is a daisy chain type network. Termination is required at the end of the network run. Controllers can range from simple single zone wall controllers to elaborate computer controlled arrangements. There can only be one controller per DMX network.
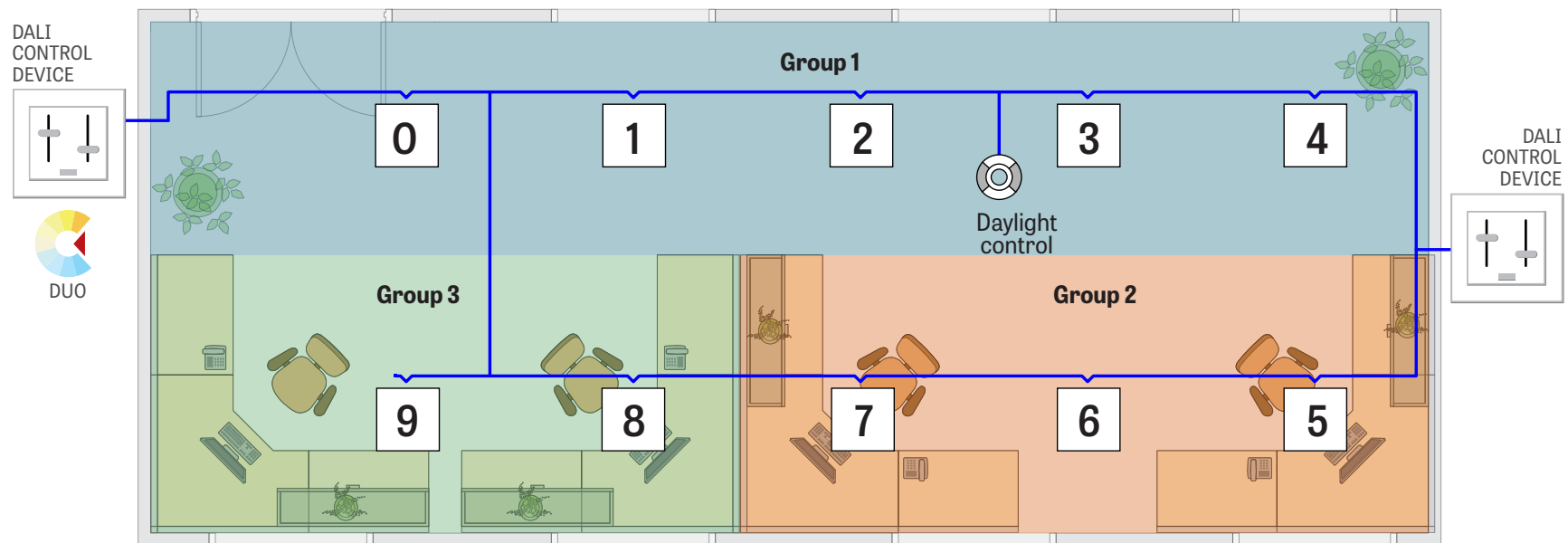
DMX MASTER

DUO

QUADRO

Group 1

Group 3

Group 2
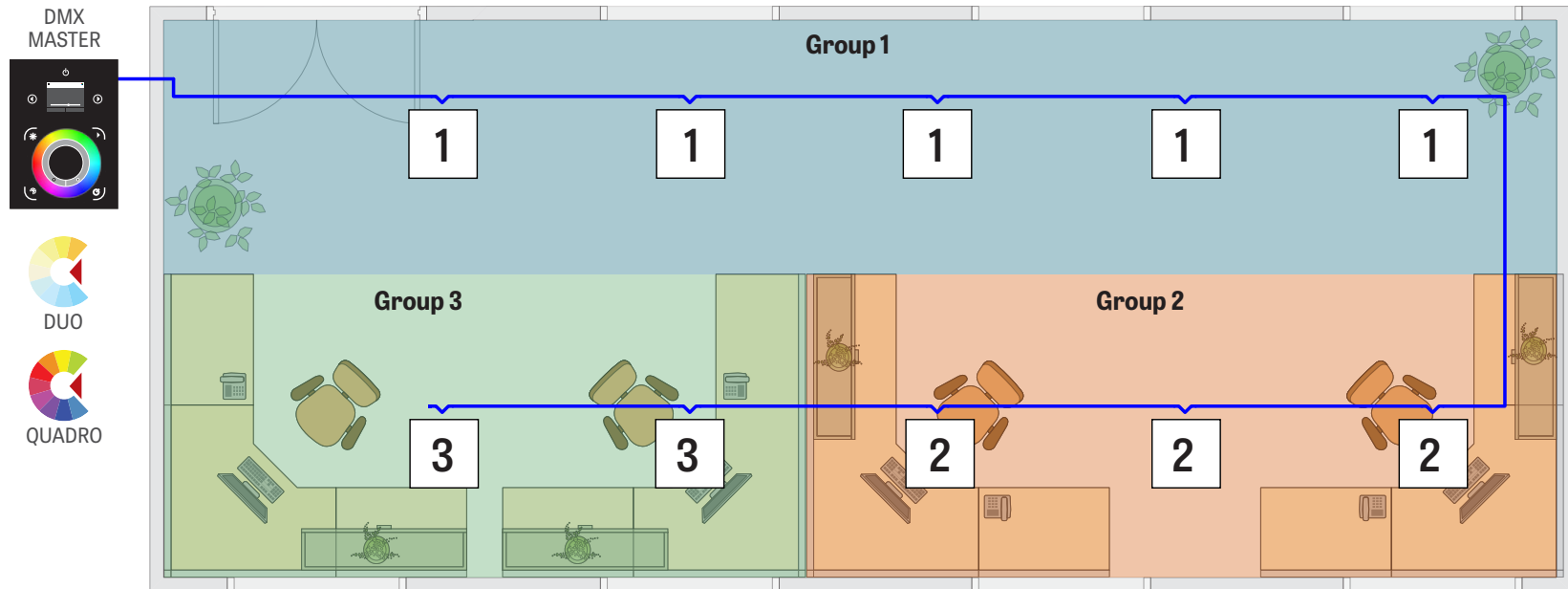
Shown with ChromaWerx Quadro

# DALI

DALI is gradually earning market share in the building lighting control arena. With powerful built-in features such as bi-directional communication between devices, individual fade rates, network based grouping as well as the possibility to have structured energy reporting, DALI is well suited for installations where information and control is key. Some wall controllers can be powered by the communication BUS itself reducing installation complexity. Each device receives a unique address and can be readdressed and grouped over the network. DALI can be used to create scenes, where a few buttons can recall saved light levels and color settings for groups of fixtures. In addition to tunable white applications, DALI can be used for single channel dimming. There can be more than one control device and/or sensor on a network allowing for a more flexible controls architecture.

DALI
CONTROL
DEVICE

DUO

Group 1

0    1    2    3    4

Daylight
control

DALI
CONTROL
DEVICE

Group 3

Group 2

9    8    7    6    5

Shown with ChromaWerx Duo

## APPLYING CHROMAWERX

First select the appropriate luminaire from the extensive list of ChromaWerx products. Select the one that meets your design requirements in terms of mounting, lighting distribution, and style.

Choose a ChromaWerx dynamic effect. Each luminaire with ChromaWerx Duo and Sola capability is supported with specification sheets that includes technical performance data and control wiring diagrams. Separate specification sheets serves ChromaWerx Quadro.

Finally choose your control approach and driver, using either our ChromaWerx controller or a third-party system. If stand-alone control is desired, you can use the convenient ChromaWerx controls. Alternatively, ChromaWerx can be controlled by third-party systems compatible with electronics in the ChromaWerx luminaires.

# LUMENWERX

The control is in your hands