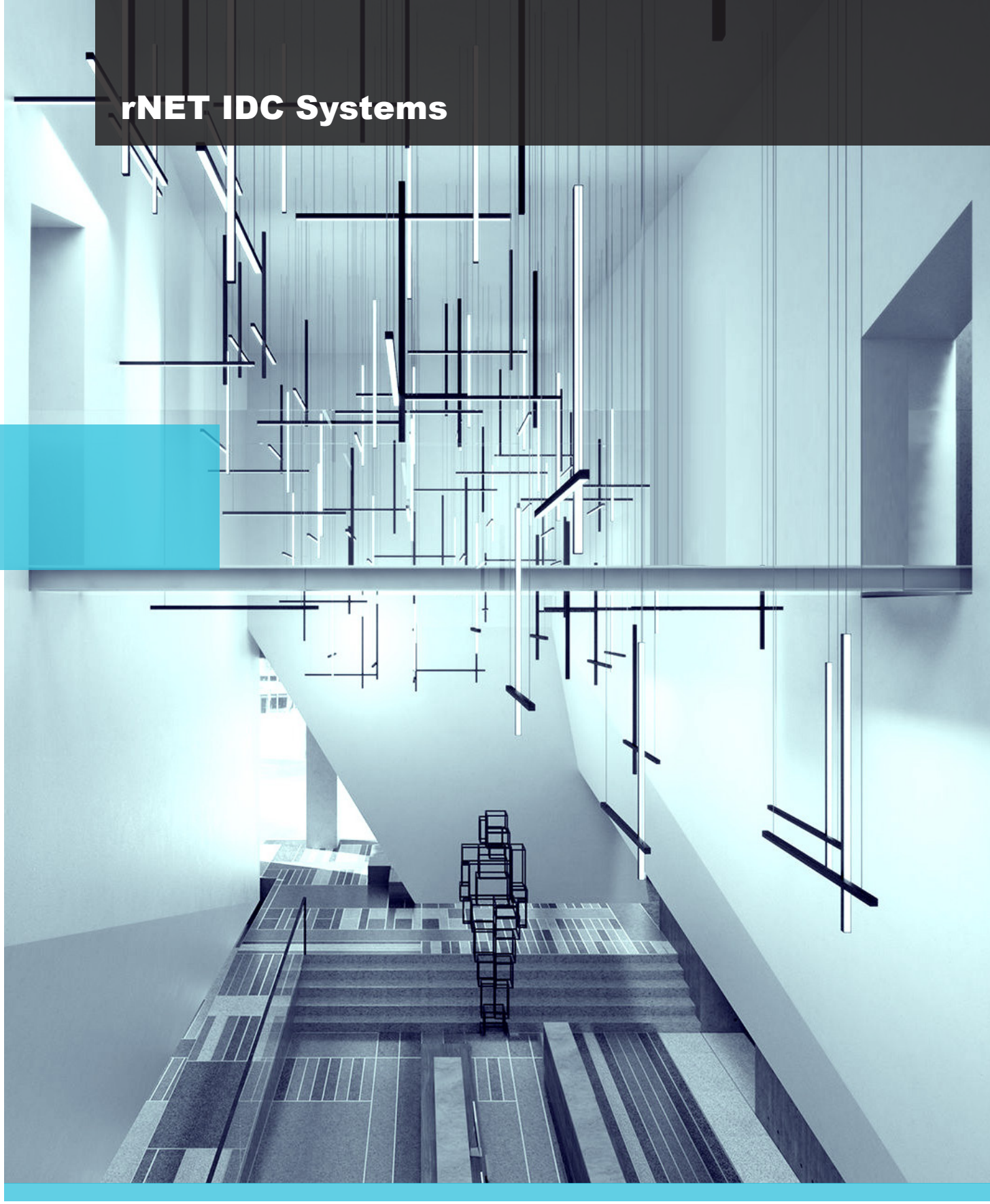
rNET IDC Systems



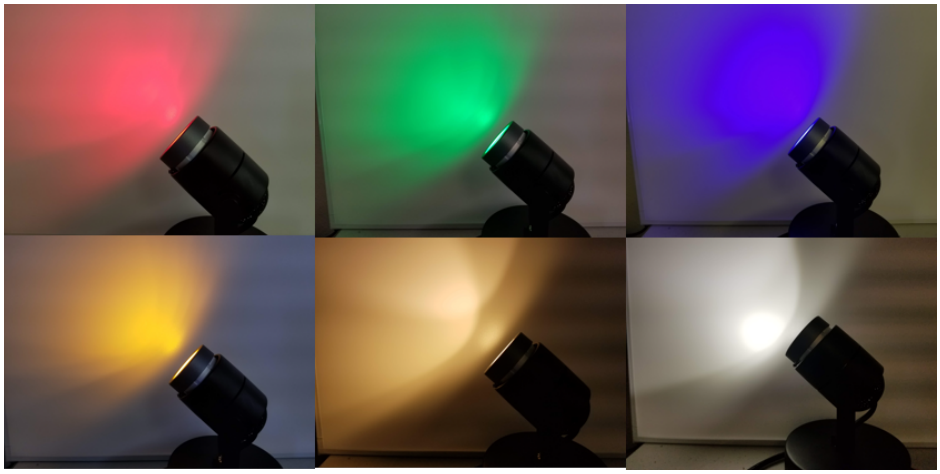
rNET Integrated Driver Control

An entire system running on 24 volts.

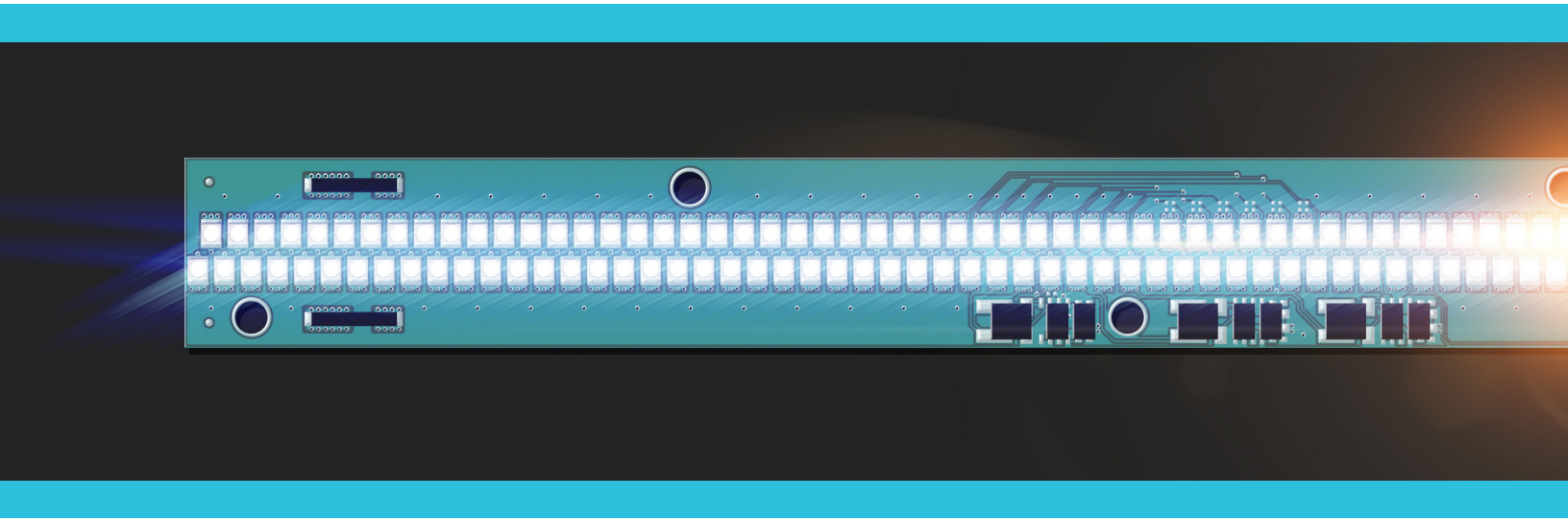
rNET's "IDC" (Integrated Driver and Control) is a light engine with capabilities unmatched by any other networked lighting system. Both power and communications are delivered to each individually addressable IDC in the network via a 24 volt signal. Each customizable IDC is capable of controlling light output depending on the lighting needs of each installation.

Ambient light sensors, occupancy/vacancy sensors along with many other sensor types can be integrated directly into the IDC network to support energy savings, circadian rhythms, CCT white tuning, over 24 million different colors and intensities which marries together energy savings and ambiance creation in one platform.

The IDC technology was designed to outperform



IDC Technology



Sharper than the cutting edge.

On board drivers
Each IDC lumanair has individually addressable onboard drivers and controls. This allows for each IDC to be individually controlled even on the same power circuit (both in series or parallel). By having the drivers on the light itself, there is never a problem with dimming or controlling multiple fixtures with a single controller. Each IDC is capable of controlling brightness, color, kelvin, or modes even on the same electrical cable.

On Board Power Mangement
With smart power managment controllers, the on board drivers deliver consistant lighting per IDC even on large and complicated circuits.

Advanced Lighting
Each IDC is capable of outputting any needed type of lighting. From White (2700k - 6500k variable), RGB, Amber, and UV (for medical disinfecting purposes) the IDC can fit into any lighting solution needed.

Adaptive Lighting
The capabilities of modern digital lighting support a much greater set of features than was available several years ago from legacy technologies. Daylight harvesting, Tunable whites, and color based visual communication are now possible and easy to use with the rNET IDC systems. The technology is flexible, robust and adapts to any application on a room by room basis.

No special wiring
The IDC utilizes an open protocol standard which delivers power and data simultaniouslty to the IDC lights. This standard is polarity and topology agnostic, and can be sent over regular romex, or sprinkler wire allowing the for IDC's to easily be installed in pre-existing systems.

Advanced Lighting Scenes

rNET's IDC Lighting systems are the perfect solution to support the dynamic landscape of lighting needs often brought on by ever-changing energy codes. Each IDC is capable of performing multiple roles independant of other lights on the same network. This makes complicated lighting and controls solutions simple, and allows for more elegant lighting solutions than have ever been possilble before.

Lighting Scenarios

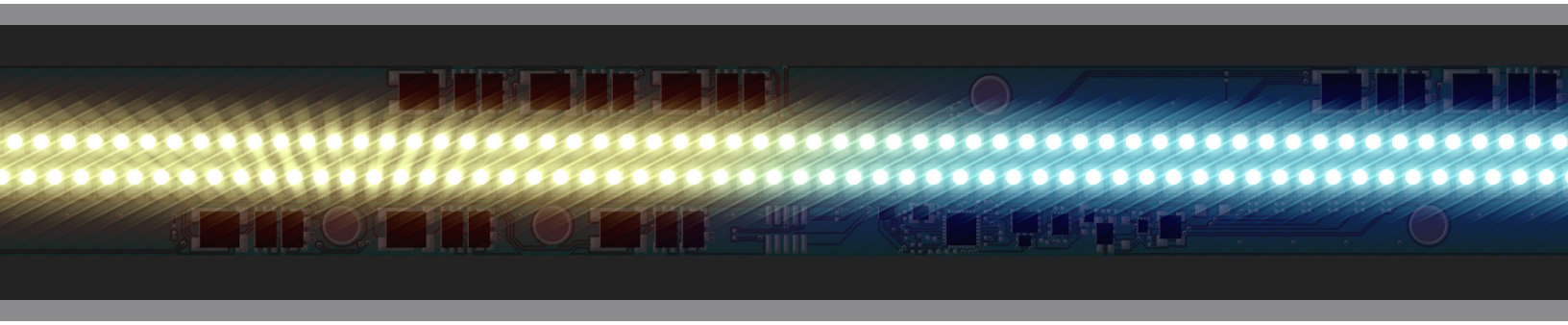
Daylight harvesting is the concept of making full use of natrual lighting from the sun in areas that allow natural light indoors. The lighting in a space can automatically be dimmed downed or turned off when enough natural light is entering the space. Because of the software based calculations, rNET's IDC systems can save energy simply without a need for complicated control systems, or interference from other lights.

Light and the Circadium Rythmn are intimately linked. Studies have shown that artificial lighting can have an immense impact on the sleep cycles and wellbeing of humans. More and more home and residential facilities, commercial facilities, and workplaces are looking at how lighting impacts the wellbeing of their tenants, employees, and customers. rNET's IDC lighting solutions can dynamically change CCT (Correlated Color Temperature) to mimic the daily progression of natural lighting positively impacting human health and wellbeing.

Dynamic dimming capabilities are one of the most complex lighting needs. Becase of the multipurpose and adaptable nature of the IDC light engines coupled with the power and versitility of rNET's control software, the rNET's IDC systems are capable of complex lighting solutions unmatched by any other systems.
rNET's IDCs are capable of dimming based on time of day, vacancy, user input, or any other variable. All control of the IDC's are done through rNET's control software instead of hardware allowing for unmatched customizable flexibility,

Visual Communication is a method of conveying contextual information to inhabitants of a particular space. Airports changing light color to show gate boarding status, schools and public institutions that have lights that change color indicating a security threat, to convention halls "sweeping" people into or out of a trade show, all exhibit subtle ways in which the light around us can affect meaning or significance to particular events and places.

IDC Light Output



Color Channels

The IDC technology has multiple channels (IDC-L/C: 12 Channels / IDC-MR16/A19: 6 Channels) each capable of being independantly controlled to customize light output per fixture. Channels can be customized according to the lighting needs for that IDC.
Every channel can contain a seperate type of LED chips allowing for multiple types of output, or multiple channels can have the same type of LED chips for brighter output.

Some common uses of IDC channels are:

CCT White tuning - Utilizing 2 channels with 2700k and 6500k white LEDs, the IDC can output any white Kelvin temperature needed from 2700k to 6500k by blending the output between the two channels.

RGBAWC Full Spectrum Output - Utilizing 4 channels, with Red, Green, Blue, amber, and warm/cool white LEDs, the IDC can output 8 bits per channel (>274 trillion combinations) replicating any color in the visible light spectrum.

Ultraviolet germicidal irradiation (UVGI) - Utilizing LEDs that emit UV-C radiation the IDC is capable of surface sanitization in unoccupied rooms. This is becoming a common lighting solution in medical facilities.

Wildlife Lighting - Amber LEDs emit light in a wavelength safe for wildlife in coastal areas, roads, walkways, and parking lots. These LED fixtures safely illuminate areas while also protecting and minimizing the effect of light pollution on our wildlife.

IDC System Benefits and Features

Capable

- rNET's IDC systems have all the capabilities of a DMX system without the cost and headaches, and the individual addressability of DALI without extra wires. The IDC takes the best of both ecosystems without the limitations.

Easy to Install

- Reuse of existing 2 wire conductors (Romex) saves time and money installing into a preexisting system. This makes the IDC a perfect solution to retrofitting.
- Low voltage (24V DC) is inherently more safe than high voltage installations. This lowers labor costs, installation costs, and allows for faster certification saving time, and money.
- Polarity agnostic wiring simplifies the installation process allowing worry free installation.

Reliable

- The IDC's board microprocessor supports redundant localized response in the event of communication loss. In the event of power, or network loss, it will still retain lighting function.
- Multiple redundant on board drivers removes the single point of failure that exists in legacy fixture designs.
- Driver function does not use any dielectric capacitors (the primary failure component of traditional drivers).
- Low voltage design ensures much longer life and reliability and mitigates “dirty power” issues.

Usable in Every Scenario

- Wired infrastructure supports govt/military/school applications.
- Digital precision and multiple channel control supports theatrical grade settings for CCT and specific color match-ing (Ex brand logos).
- Dual interleaved design supports close proximity of diffusor to LED array.
- 2-wire daisy chain architecture enables up/down linear fixtures with no external power cord when using integrated coductor/aircraft cables.