

# Installation Manual

North American Variants

Product Codes: CS22NA, CS24NA, CS12NA, CS14NA, CS154NA

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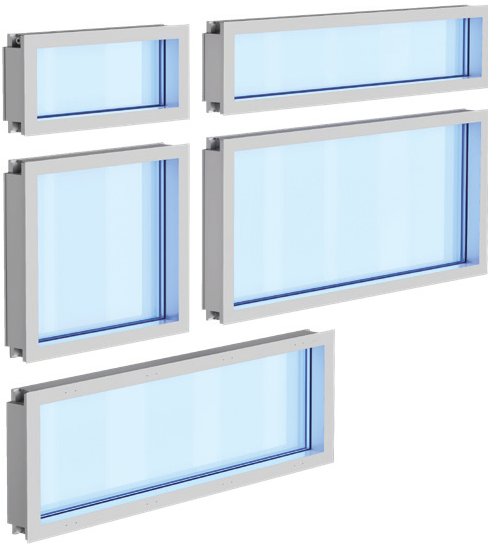
**Compatible Dimmers** (the list below is not exhaustive, confirm with dimmer maker)

Control	Brand	Model
0-10V or 1-10V 2-ch.	Ambientech	ZeroTone™
	Leviton	Decora™
	Lutron	Diva™, Nova™, GRAFIK Eye™, HomeWorks™, Quantum™
	nLight	nPODMA 2P™ & 2x nPP16™, nPODMA 2P™ + nPP16 & nIO™
Casambi	Casambi	Xpress™
	Magtech	ATOM™
DALI-2 DT8 Tc	Helvar	950 Router
	Lutron	Athena™, HomeWorks™
	Osram	DALI MCU TW
	Pharos	Expert Control™
DMX	Leviton	Various
	Lutron	HomeWorks™, Quantum™
	Pharos	Expert Control™

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## What is in the box

1x Circadian Sky light fixture



### Optional accessories

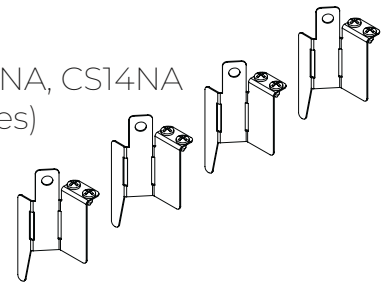
(Available from Innerscene)

Circadian Sky Grid Mounting Kit:

Suitable for the following products: CS22NA, CS24NA, CS12NA, CS14NA

4x tee grid clips (compatible with 9/16" or 15/16" exposed tees)

8x #6(3.5mm) x 1/4"(6.5mm) self-tapping screws



2-Foot Joist Mounting Kit:

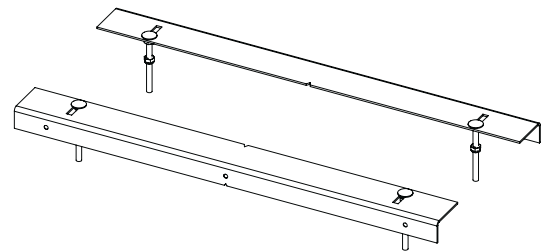
Suitable for the following products: CS22NA, CS24NA

2x 2' Ceiling joist mounting brackets

4x M6 bolts

4x M6 hex nuts

4x M6 hex lock nuts



1-Foot Mounting Kit:

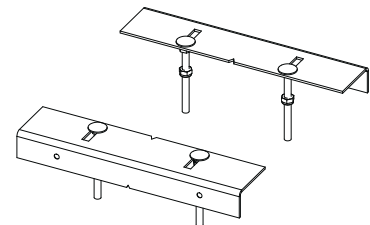
Suitable for the following products: CS12NA, CS14NA, CS1848NA, CS154NA

2x 1' Ceiling joist mounting brackets

4x M6 bolts

4x M6 hex nuts

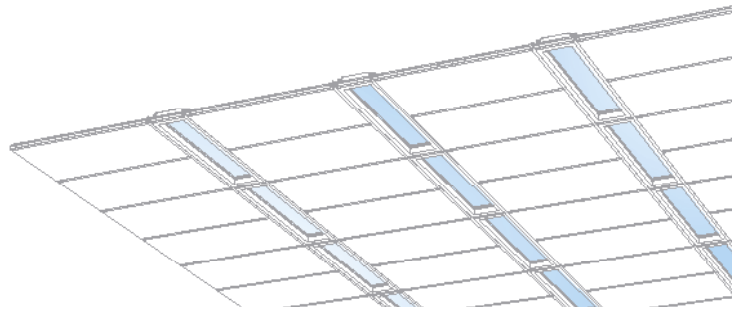
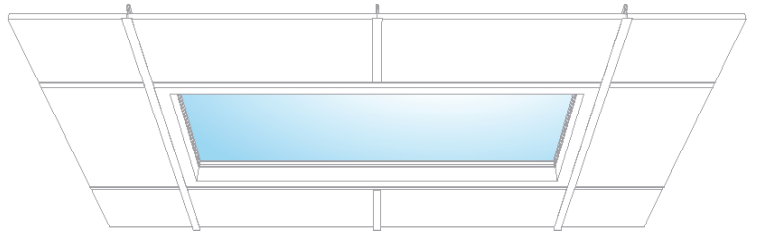
4x M6 hex lock nuts



## Recommended tools and materials for ACT/Grid/Suspended ceiling installs

(Supplied by others)

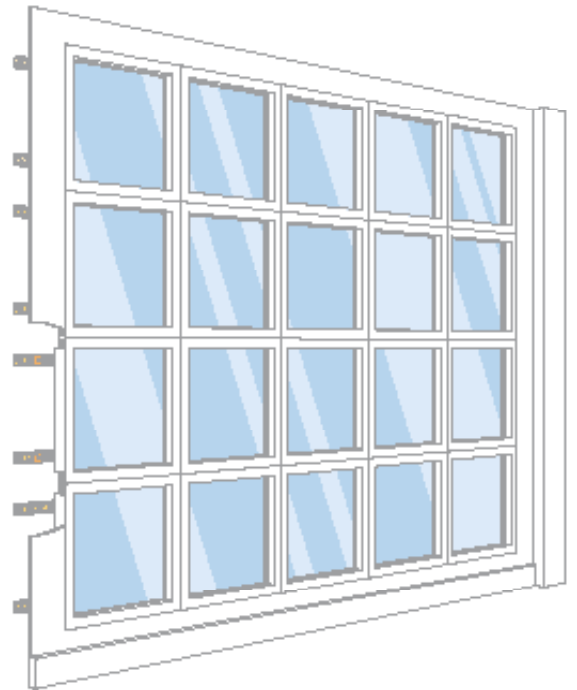
- 1) PPE. (Personal Protective Equipment)
- 2) 8" Diags (Side cutter) or wire strippers (to cut and strip wires)
- 3) Large flat head screwdriver (to open K.O.)
- 4) Pozidriv screwdriver or Pozidriv screwdriver bit (for Grid clips screws)
- 5) 12-Gauge (1.5mm) hanger wire
- 6) 12-2 or 14-2 WG NM-B Romex and 1/2 in. Romex Electrical Wire Clamp. Suitable for use with Flexible Metal Conduit (FMC) and Squeeze Connector. 1/2 in. Knockout 90-Degree Connectors are required for tight two dimensional arrays.



## Recommended tools and materials for drywall/plasterboard installs

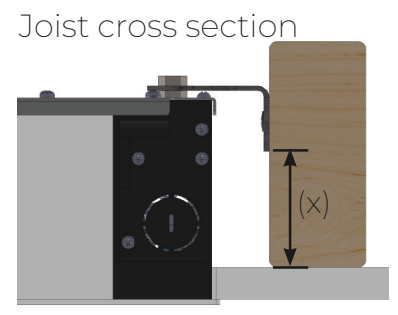
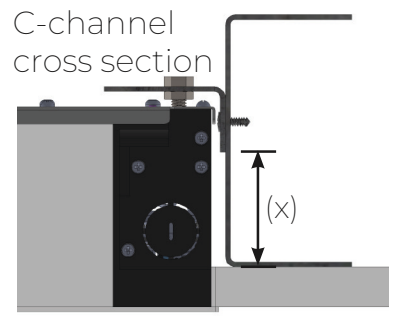
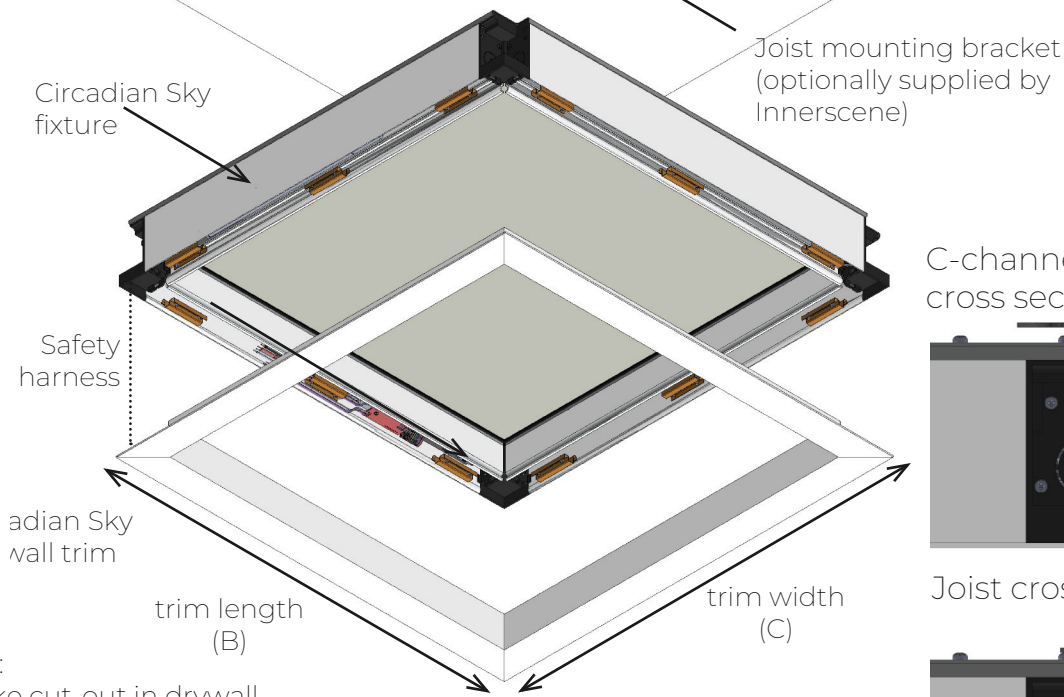
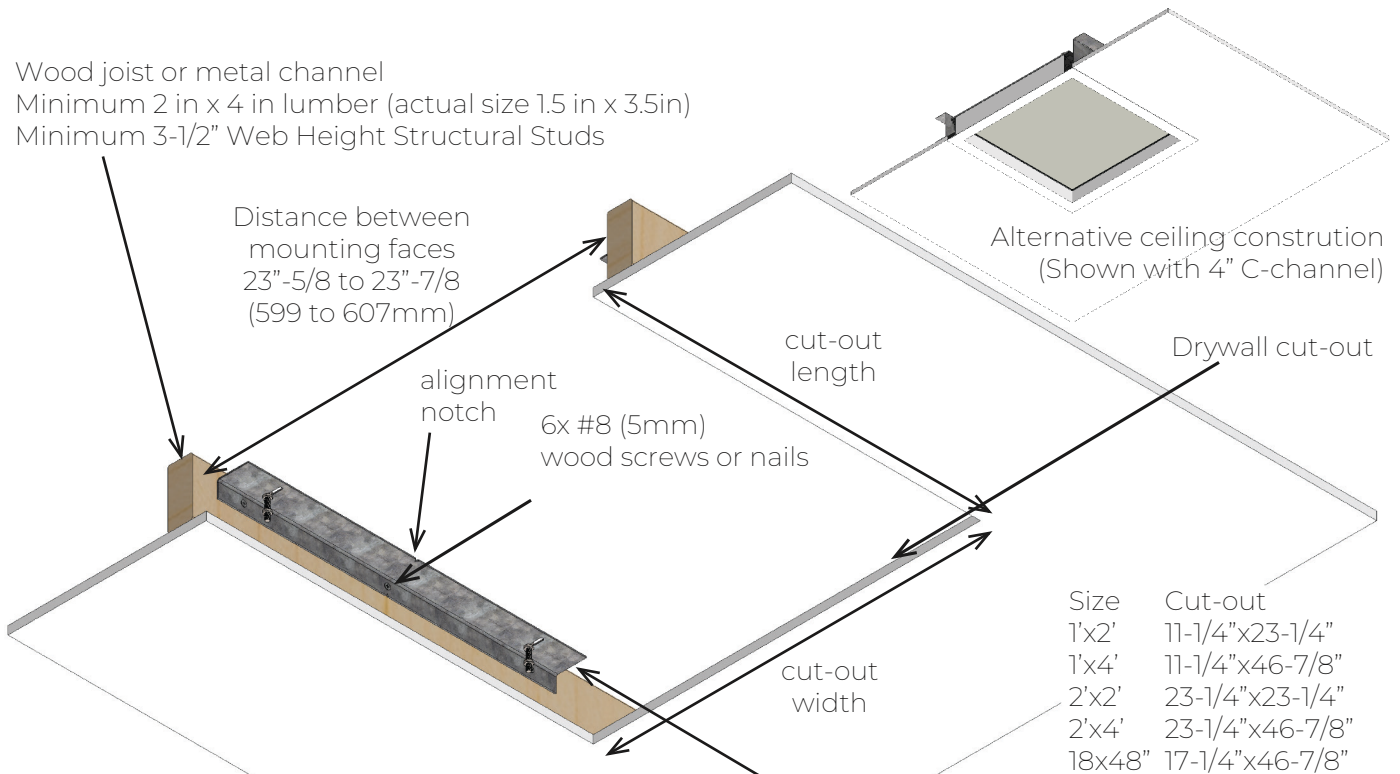
(Supplied by others)

- 1) PPE. (Personal Protective Equipment)
- 2) M6 hexagonal nut driver (nut spinner) with 10mm (13/32 in.) hex size
- 3) Drywall saw
- 4) Laser level (to align cut-out or when installing multiple fixtures)
- 5) Tape measure
- 6) 8" Diags (Side cutter pliers) or wire strippers (to cut and strip wires)
- 7) Large flat head screwdriver (to open K.O.)
- 8) Pozidriv screwdriver or Pozidriv screwdriver bit (for wood screws)
- 9) 6x #10 (5mm) countersunk wood screws for wood joists, or self-tapping/self-drilling screws (e.g. MF20 wafertek screws) for metal channels.
- 10) 12-2 or 14-2 WG NM-B Romex and 1/2 in. Romex Electrical Wire Clamp. Suitable for use with Flexible Metal Conduit (FMC) and Squeeze Connector. 1/2 in. Knockout 90-Degree Connectors are required for tight two dimensional arrays.



# Individual drywall/plasterboard installations with joists

Wood joist or metal channel  
 Minimum 2 in x 4 in lumber (actual size 1.5 in x 3.5 in)  
 Minimum 3-1/2" Web Height Structural Studs



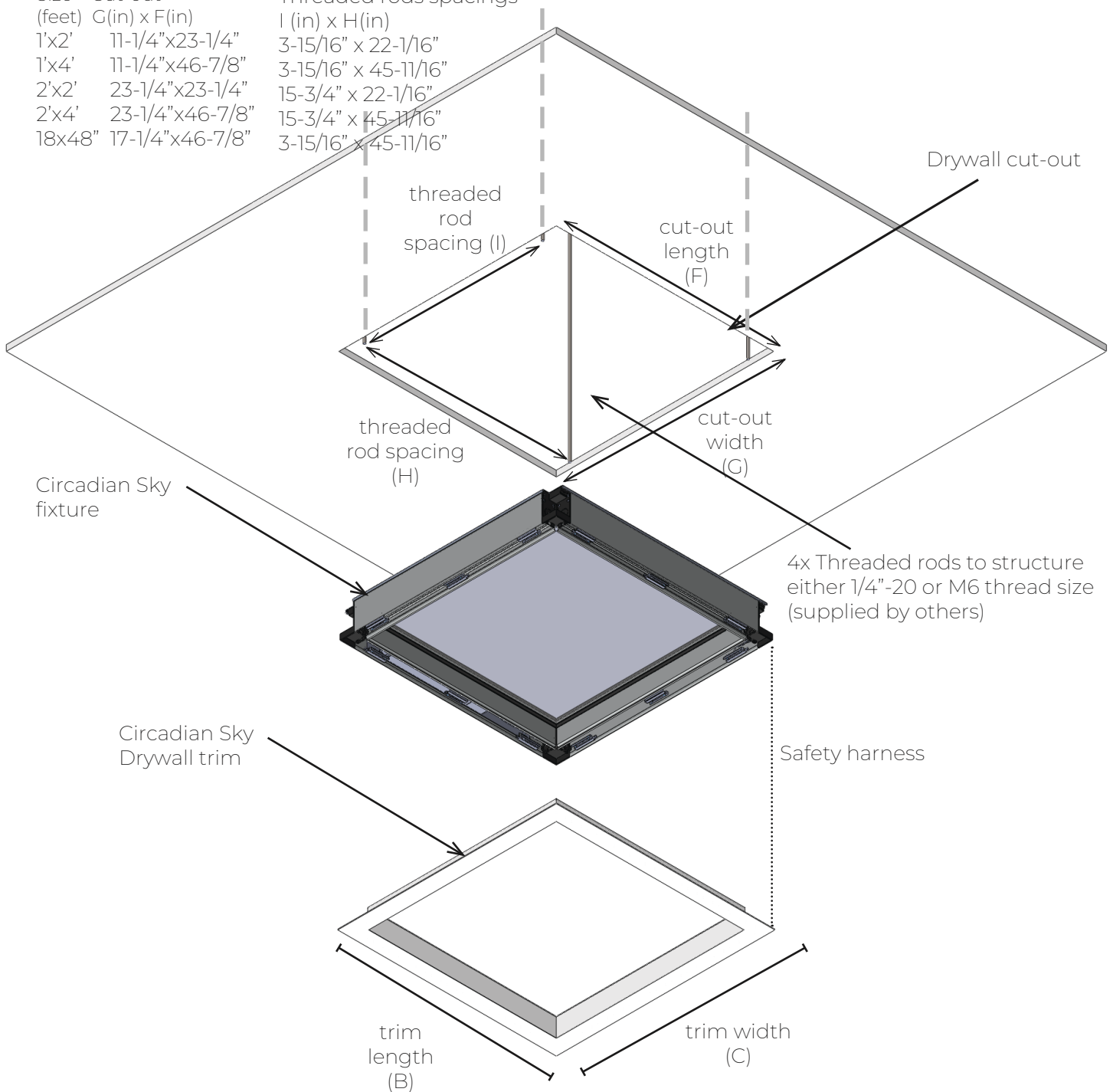
Bracket offset (x)  
 1/2" drywall = 1-7/8"  
 5/8" drywall = 1-15/16"  
 2x 1/2" drywall = 2-3/8"  
 2x 5/8" drywall = 2-7/16"

## Steps:

- 1) Make cut-out in drywall.
- 2) For remodelling, existing joists may need to be modified with extra joist headers. Secure Joist mounting brackets to joist or channel.
- 3) Pull power or dimming wires to Primary fixture.
- 4) Break 3/8" K.O. (Knock-Outs) using a flat head screw driver and connect wires.
- 5) Raise fixture until bottom of fixture is level with finished ceiling.
- 6) Secure fixture to threaded bolts using hex nuts (M6 hex nut with 10mm or 13/32" AF width).
- 7) Clip safety harness of Drywall trim to fixture. Snap-fit Drywall trim to fixture.

# Individual drywall/plasterboard installs without wood joists

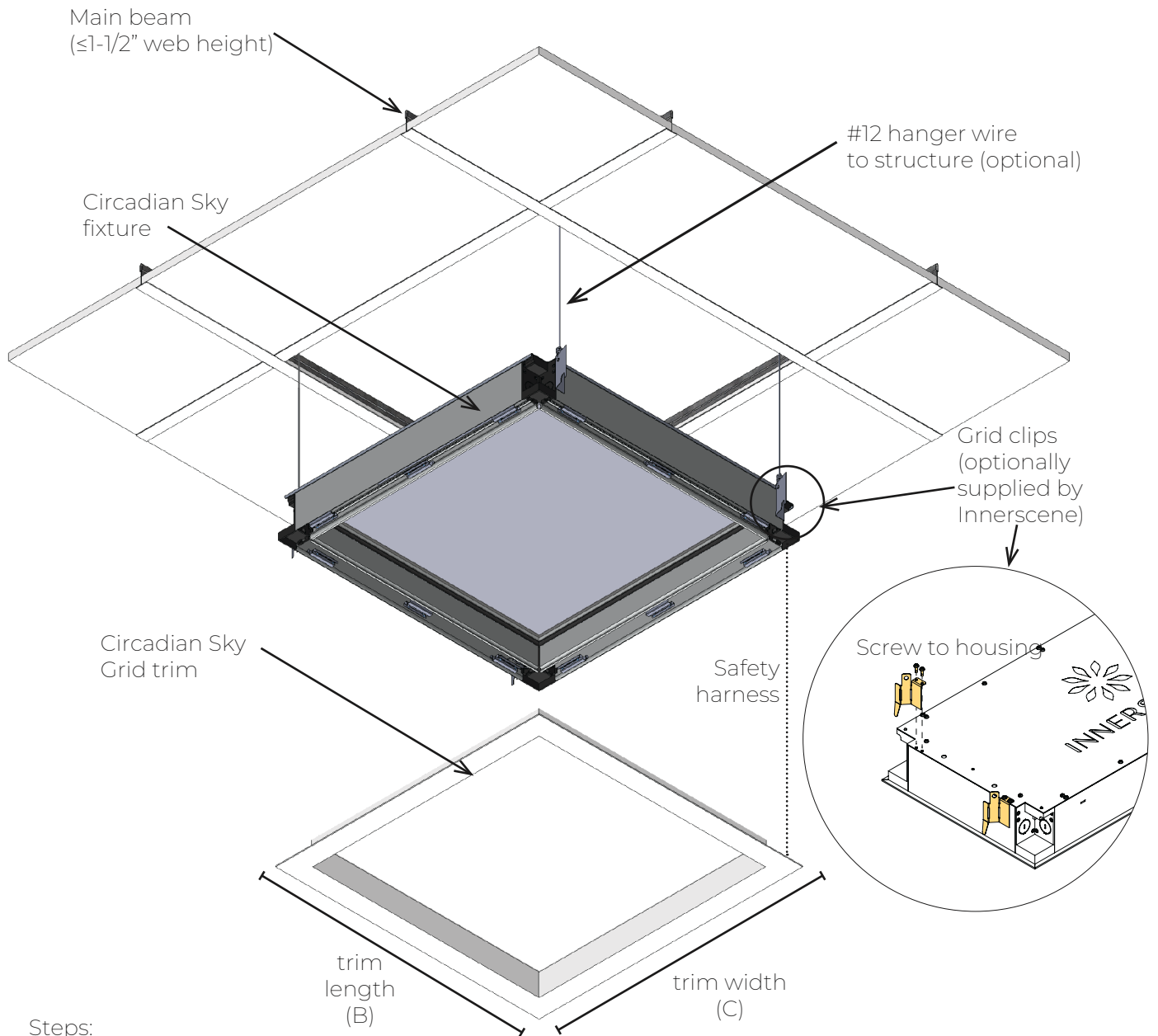
Size (feet)	Cut-out G(in) x F(in)	Threaded rods spacings I (in) x H(in)
1'x2'	11-1/4"x23-1/4"	3-15/16" x 22-1/16"
1'x4'	11-1/4"x46-7/8"	3-15/16" x 45-11/16"
2'x2'	23-1/4"x23-1/4"	15-3/4" x 22-1/16"
2'x4'	23-1/4"x46-7/8"	15-3/4" x 45-11/16"
18x48"	17-1/4"x46-7/8"	3-15/16" x 45-11/16"



## Steps:

- 1) Make cut-out in drywall.
- 2) Install fixing points to structure (concrete ceiling / beams / structural channels etc.)
- 3) Connect threaded rods to fixing points. Either 1/4" or M6 threaded rods are suitable.
- 4) Pull power or dimming wires to Primary fixture.
- 5) Break 3/8" K.O. (Knock-Outs) using a flat head screw driver.
- 6) Raise fixture until bottom of fixture is level with finished ceiling.
- 7) Secure fixture to threaded rods using hex nuts. Locking nuts are optional.
- 8) Clip safety harness of Drywall trim to fixture. Snap-fit Drywall trim to fixture.

# ACT/Grid/suspended ceilings installations

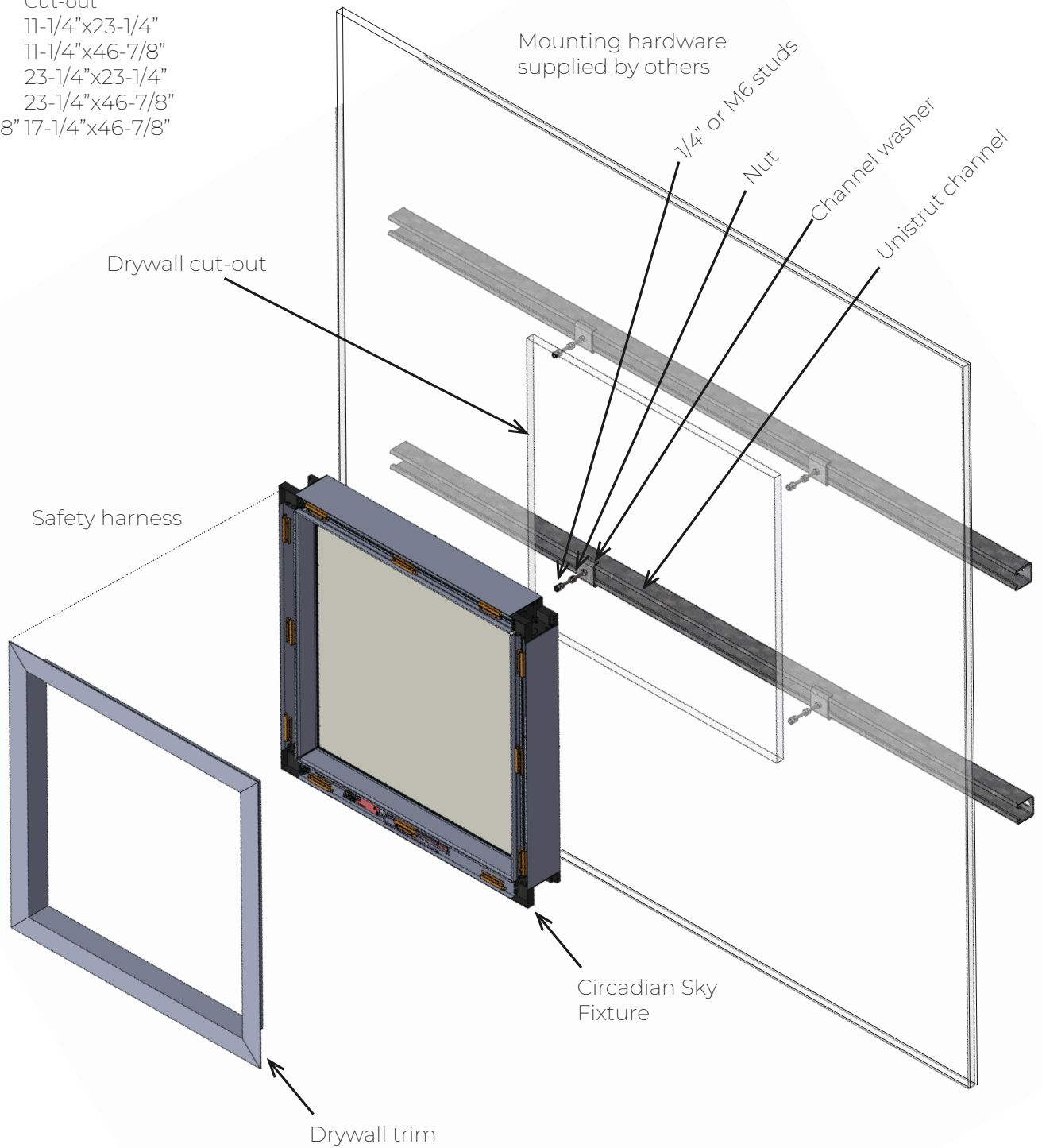


**Steps:**

- 1) Remove existing mineral tiles (if applicable)
- 2) Screw Grid clips to back of fixture using self-tapping screws (provided)
- 3) Snap-out fixture trim and open K.O. (Knock-Outs)
- 4) Connect building power and dimming wires (primary fixture only) to fixture
- 5) Snap-in fixture trim
- 6) Lay-in fixture above ceiling grid, align Grid clips to bulb of main runners/beams
- 7) Attach #12 hanger wires (if deemed necessary, fixture weighs 26 lbs per 2'x2' size)

## Individual Vertical (In-Wall) installations

Size	Cut-out
1'x2'	11-1/4"x23-1/4"
1'x4'	11-1/4"x46-7/8"
2'x2'	23-1/4"x23-1/4"
2'x4'	23-1/4"x46-7/8"
18"x48"	17-1/4"x46-7/8"

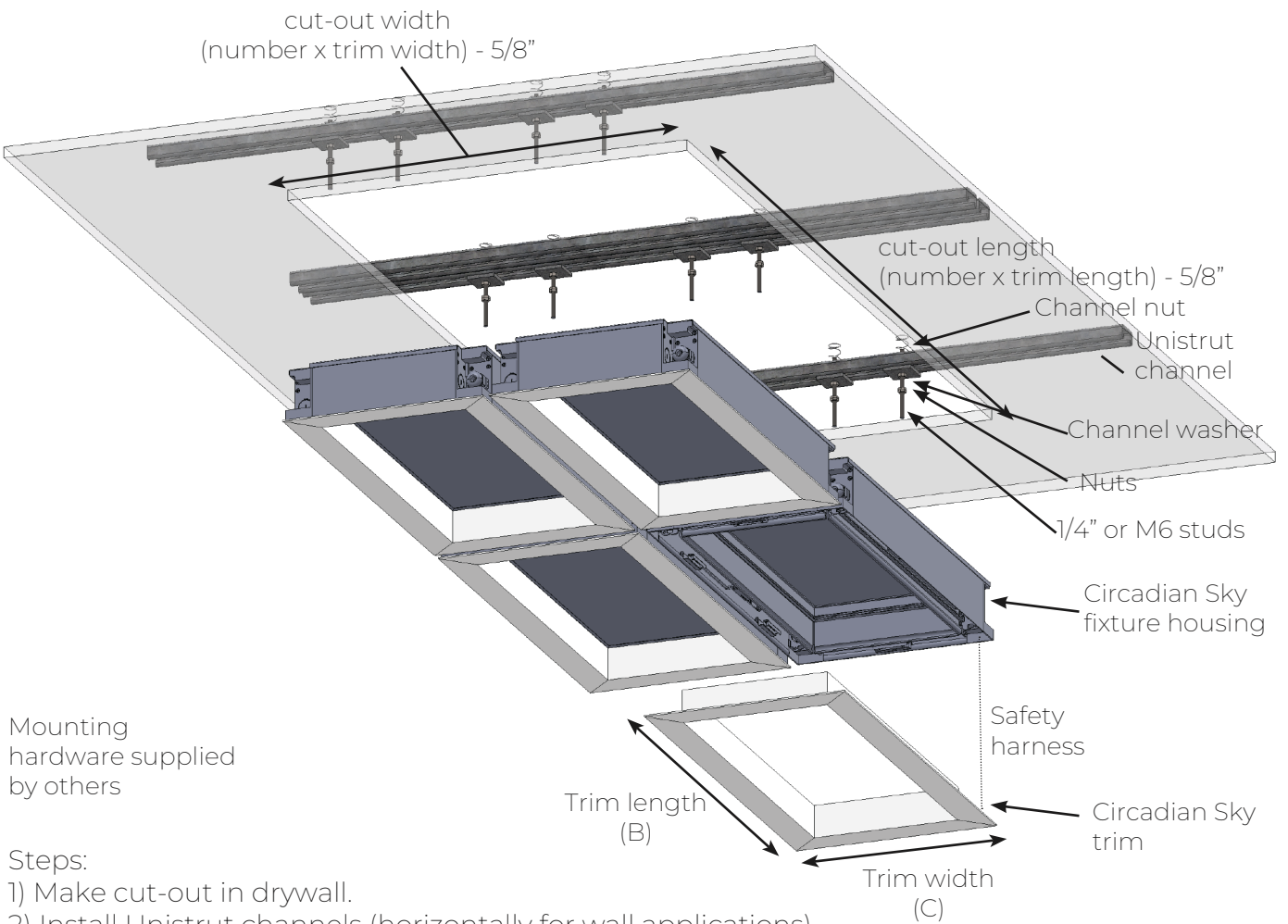
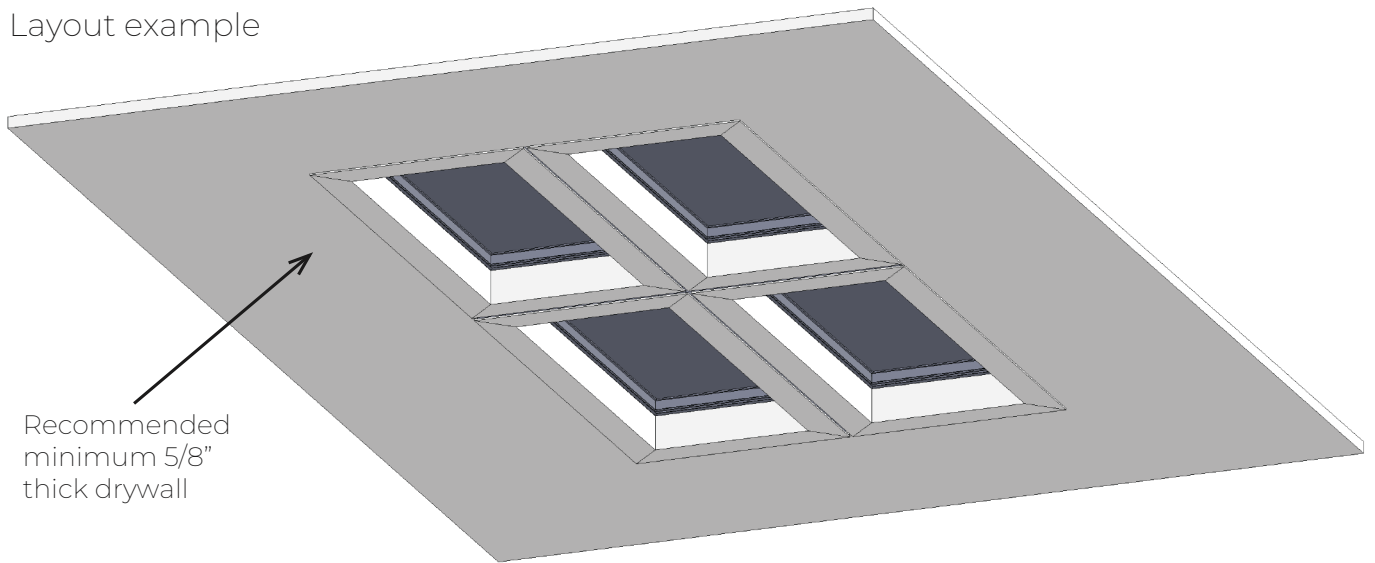


### Steps:

- 1) Make cut-out in drywall.
- 2) Install Unistrut channels (horizontally for wall applications)
- 3) Install 1/4" or M6 threaded rod to align with mounting holes in fixture.
- 4) Install 2x backing nuts per threaded rod to set install depth.
- 5) Pull power or dimming wires to Primary fixture.
- 6) Break 3/8" K.O. (Knock-Outs) using a flat head screw driver.
- 7) Ease fixture into position until front is flush with finished drywall. Adjust backing nuts if needed.
- 8) Secure fixture to threaded rods using hex nuts. Locking nuts are optional.
- 9) Clip safety harness of Drywall trim to fixture. Snap-fit Drywall trim to fixture.

# Tight array with drywall/plasterboard ceilings or walls installations

Layout example



Mounting hardware supplied by others

**Steps:**

- 1) Make cut-out in drywall.
- 2) Install Unistrut channels (horizontally for wall applications)
- 3) Install 1/4" or M6 studs to align with mounting holes in fixture.
- 4) Pull power or dimming wires to Primary fixture.
- 5) Break 3/8" K.O. (Knock-Outs) using a flat head screw driver.
- 4) Raise fixture until bottom of fixture is level with finished ceiling.
- 5) Secure fixture to threaded rods using hex nuts. Locking nuts are optional.
- 6) Clip safety harness of Drywall trim to fixture. Snap-fit Drywall trim to fixture.



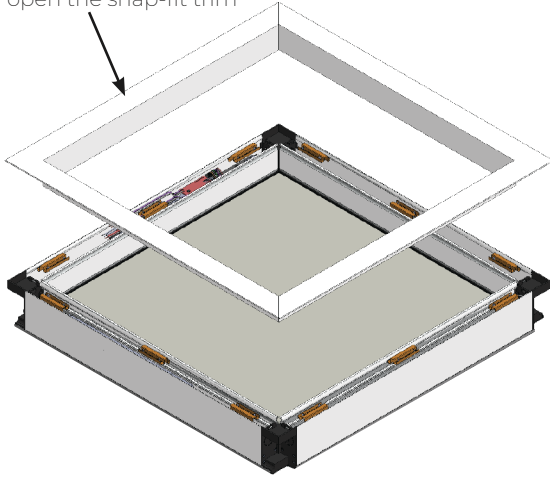
# Wiring



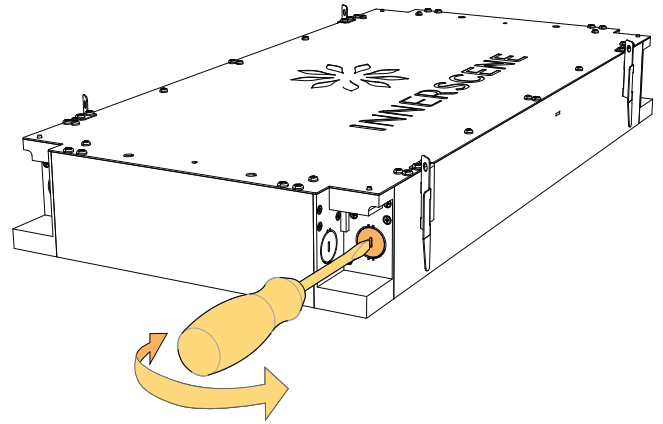
IMPORTANT: READ ALL INSTRUCTIONS THOROUGHLY PRIOR TO INSTALLATION, USE QUALIFIED INSTALLERS/ELECTRICIANS, COMPLY WITH LOCAL ELECTRICAL CODES, RETAIN INSTALL MANUAL FOR REFERENCE.

## Open trim

Pull open the snap-fit trim



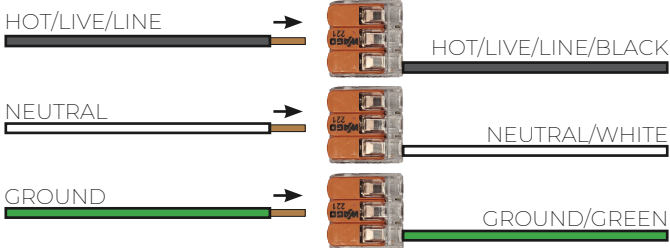
## Break 1/2" K.O. (Knockout)



### NORMAL POWER WIRING (All fixtures inc. Casambi)

BUILDING POWER

WIRING IN FIXTURE

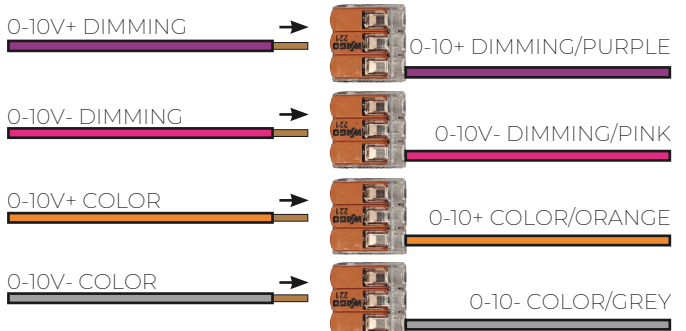


Wago Connectors (supplied)

### 0-10V DIMMING WIRING (Primary fixture-only)

BUILDING DIMMING

WIRING IN FIXTURE

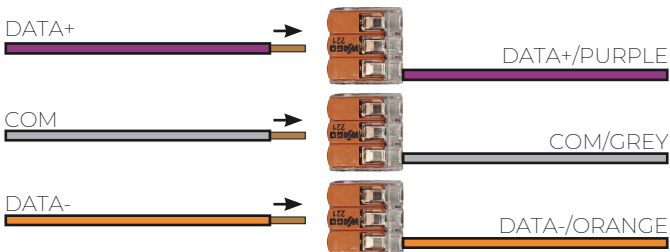


Wago Connectors (supplied)

### Wiring DMX Tunable Sky (Primary fixture-only)

BUILDING DIMMING

WIRING IN FIXTURE

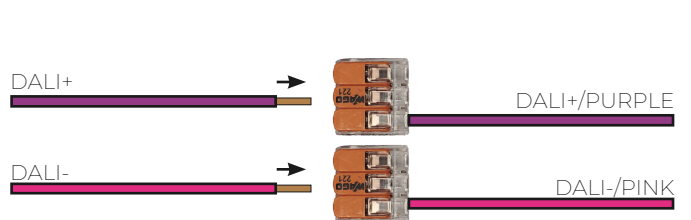


Wago Connectors (supplied)

### DALI-2 DT8 Tc Tunable Sky (Primary fixture-only)

BUILDING DIMMING

WIRING IN FIXTURE



Wago Connectors (supplied)

- 1) Only Primary fixture have lighting control/dimming pigtails.
- 2) Only 1no. Primary is sold per group/zone.
- 3) Casambi Primary fixture are wireless and does not require additional dimming wiring.
- 4) Building wires to be 18-12 AWG when using the supplied Wago connectors.

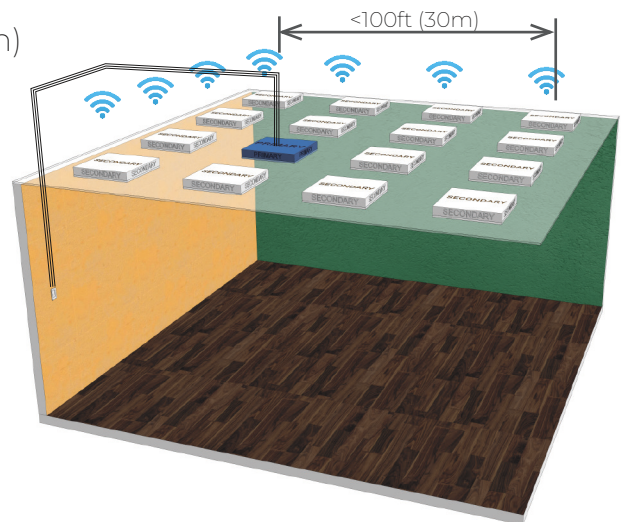
## Fixture placement

### Innerscene Wireless Star Network (Default option)

Recommended use: Residential, Small-Medium Commercial open plan projects.

Compatible with DMX or 0-10V/1-10V or DALI or Casambi dimming wiring at Primary fixture.

Maximum range of 100ft (30m) from Primary fixture (blue) to any other fixture within the same zone/group. Always place Primary fixture central within the zone.. For longer distance from Primary to furthest Secondary fixtures, the zone may need to be split into smaller zones to maintain wireless signal.



### Innerscene Hardwired Fixtures

(Recommended where individual control of each fixture is required, or if 2.4GHz wireless signal is not permitted such as high security or highly congested wireless environment. Contact Innerscene for more information)

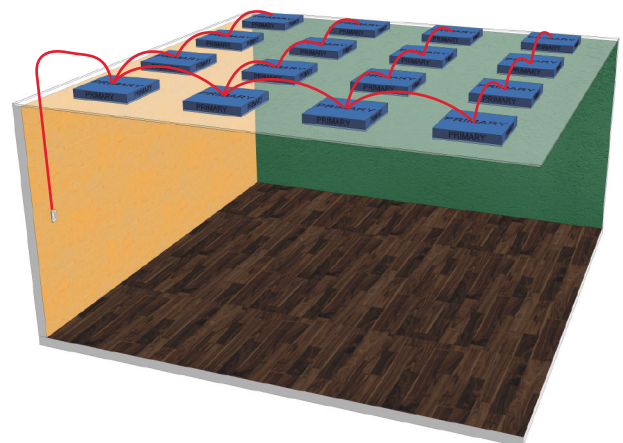
Control wires to each fixture

DMX: up to 32 fixtures per zone/group

DALI: up to 64 fixtures per zone/group

Casambi: up to 250 fixtures per network

0-10V/1-10V: not recommended, up to 20 fixtures per zone/group (dimming wires must be the same gauge and length from dimmer to each fixture to avoid dimming or colour variations)



## Commissioning

### Factory Pre-Commissioning

When ordering Circadian Sky fixtures from Innerscene with factory pre-commissioning, the local time and geolocation will be saved into the Primary fixture. The Primary fixture contain a non-rechargeable battery that will maintain the clock for around 10 years (Consult Innerscene for instructions on how to replace the battery).

The Primary fixture is the only fixture to require hard-wired control signals (unless using Casambi Controls).

The Primary fixture will automatically send out dimming and colour control signals wirelessly to nearby Secondary fixtures within the same zone.

The Primary fixture contain a removable battery which retains the built-in clock even without mains power. The battery is expected to last up to 10 years. Once the battery depletes, the clock will not be maintained if building power is turned off.

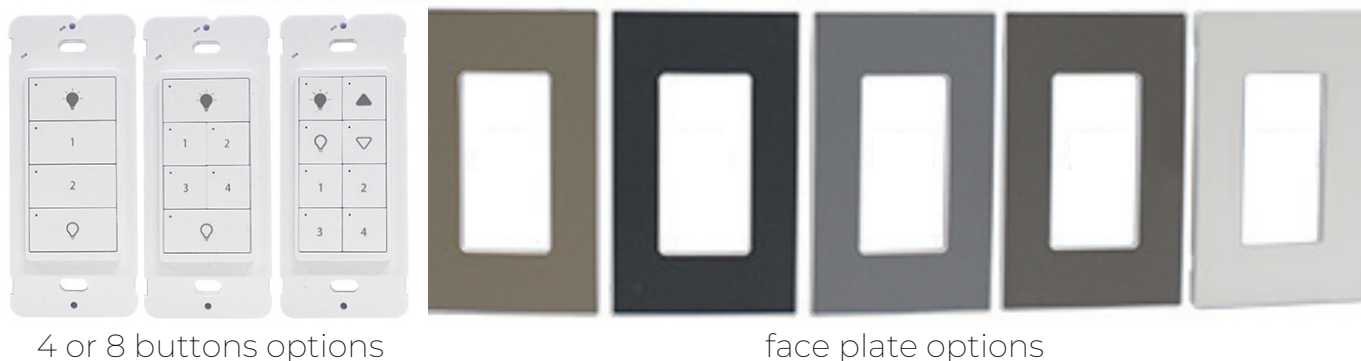
When placing the Primary fixture, ensure it is approximately in the central area of the zone to ensure good wireless signal to all Secondary fixtures.

### On-Site Commissioning

For on site pairing by installers or contractors, please refer to our website for latest instructions.

## Casambi Controls

Casambi offer a comprehensive ecosystem of wired and wireless controls to work with Innerscene light fixtures. For North America, wall switches are available in either hard wired or battery powered versions with different face plates and button configurations as shown below, available from Magtech Industries Corp.



### FOR INSTALLERS

Primary fixture/s are supplied with one integrated Casambi device. Secondary fixtures must be in the same Zone number to receive wireless control signal from the Primary fixture/s. If not factory-commissioned, Zone can be assigned using the Wifi interface.

- 1) Install Casambi app from the Google or Apple app stores
- 2) Make a new Network
- 3) Add fixtures (Luminaire) to the Network. Group Luminaires to Groups if required
- 4) Add Scenes or Timers or Switches if required
- 5) Add Sensors if required (may be required under California Title 24)

### FOR END USERS

- 1) Install Casambi app from the Google or Apple app stores
- 2) Open the nearby lighting Network (this will also synchronise local time)
- 3) To adjust brightness/colour of light fixtures, tap on Luminaire and tap and hold a particular Luminaire. Drag the sliders to adjust brightness or colour.
- 4) Quick tap on Luminaire to turn on or off
- 5) To select a previously programmed scene, tap on the Scenes tab, then tap on a Scene.
- 6) To Add or Remove or Amend fixtures or scenes, please consult a Casambi installer

### HOW TO ADD/MODIFY CASAMBI DEFAULT CIRCADIAN PROFILES

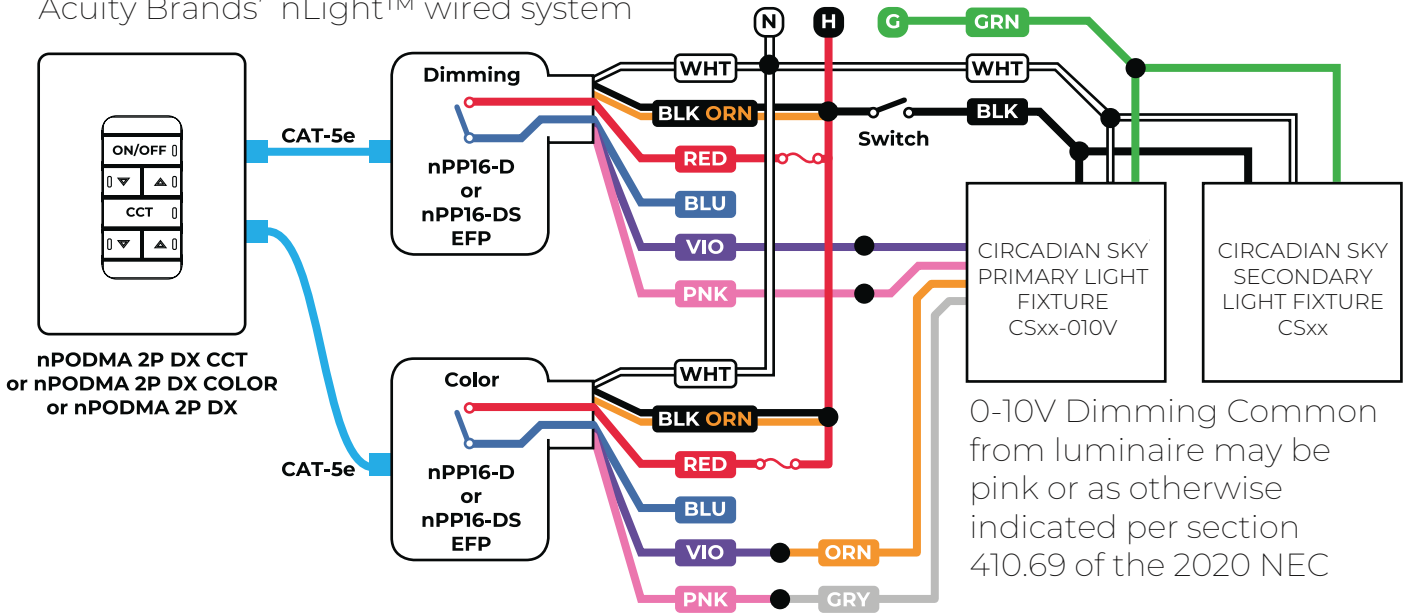
- 1) Add new Scene
- 2) Go to Scene settings
- 3) Select Circadian Profile
- 4) Edit Circadian Profile to suit requirements

### HOW TO ADD/MODIFY INNERSCENE CIRCADIAN PROFILES

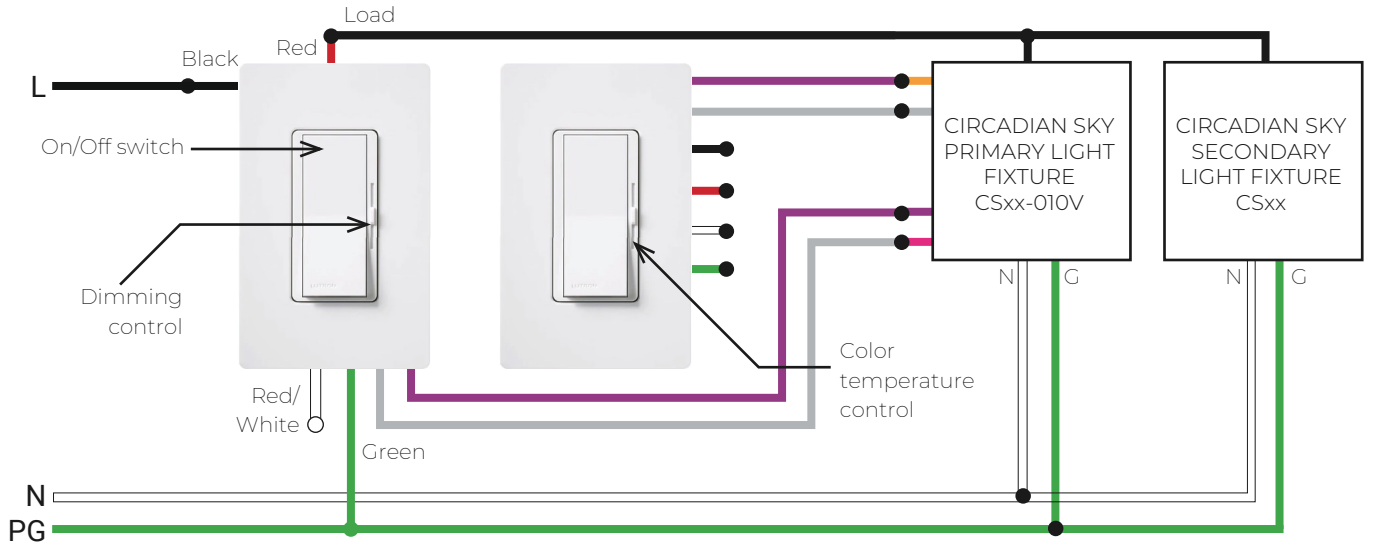
- 1) Add intermediate scenes for each fixture/groups. For example: 2700K, 3500K, 6500K
- 2) Add new animation
- 3) For seasonal circadian profile to match outdoor sunrise and sunset, add transitions based on sunrise and sunset time and offsets.
- 4) For fixed circadian profile that does not vary with seasons, add transitions based on fixed time of day. For example: 50% 2700K at 6am. 100% 6500K at 12:00pm. 50% 2700K at 6am.

# Dual channel 0-10V Controls

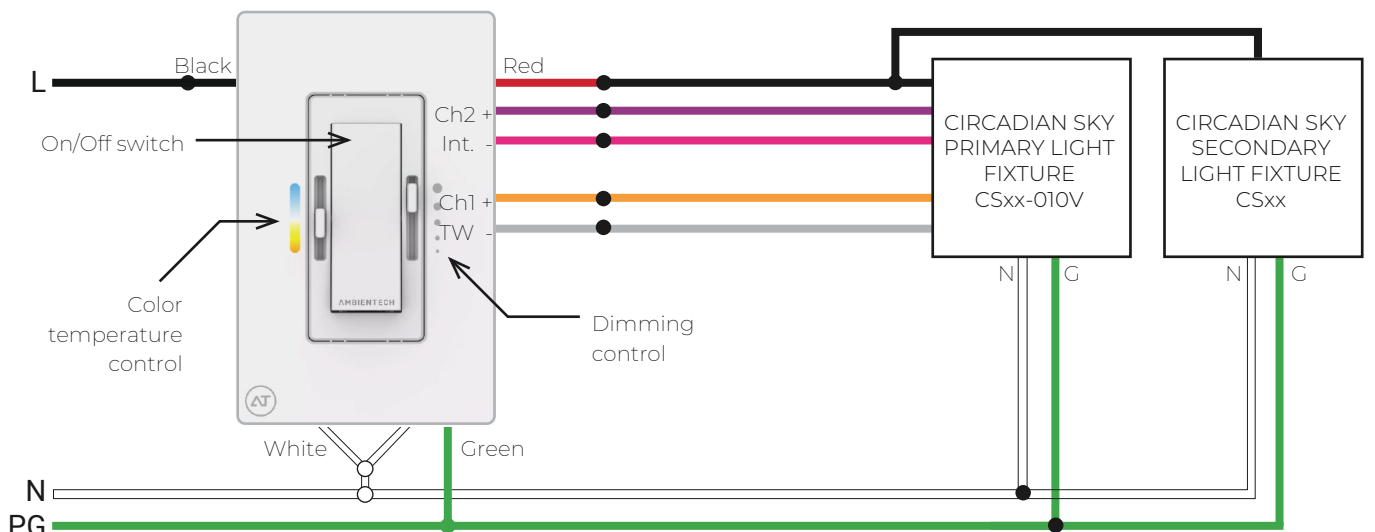
Acuity Brands' nLight™ wired system



# Two 0-10V dimmer switches (example: Lutron Diva™ or Nova T™)



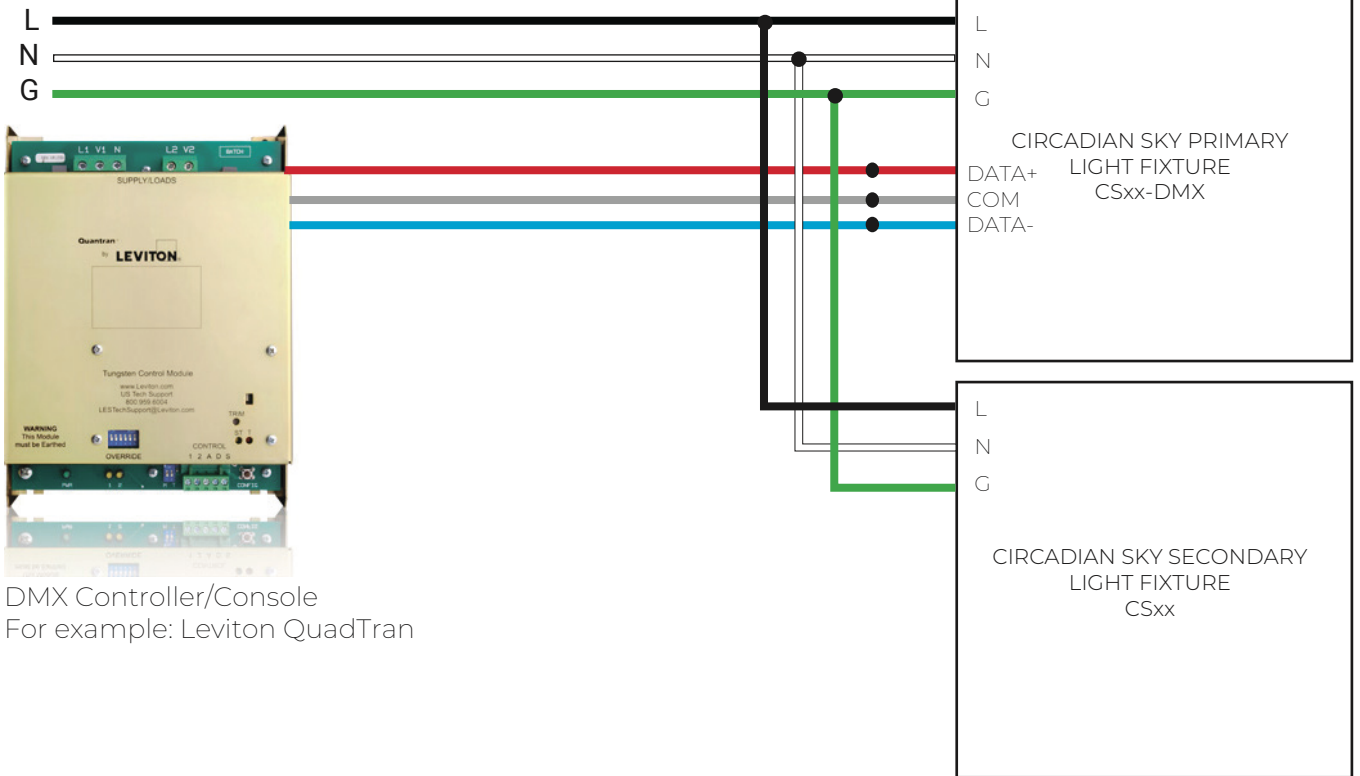
# 2 channel 0-10V dimmer switches (example: Ambientech ZeroTone™)



nLight™ is a trademark of Acuity Brands Inc. Diva and Nova T are trademarks of Lutron Electronics Company. ZeroTone is a trademark of Ambientech Inc.

# DMX Controls

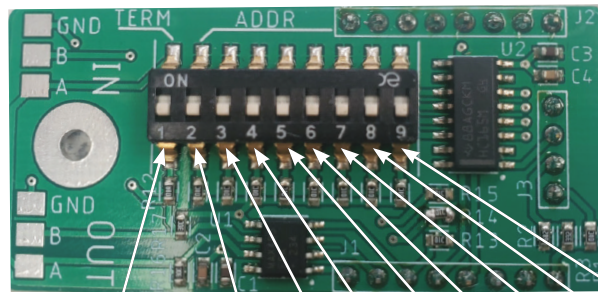
## DMX Wiring and Setup



### FOR INSTALLERS

- 1) If the fixture is at the end of the signal run then set fixture to Termination. DIP switch on Daughterboard position 1 to ON/UP.
- 2) Set the same starting channel on the fixture as the DMX controller/console using the DIP switch. The DIP switch use Binary encoding, for example, channel 17 is 0000010000. Any starting channel up to 511 is valid. Channels 512 to 1023 are invalid.
- 3) By default the switches at all set to OFF and will not respond to DMX signals.
- 4) First channel is Intensity/Dimming. Second channel is Colour/Tuning. For example, if starting channel is set to 17, channel 17 is Dimming control (Intensity), channel 18 is Colour control (CT).

### CIRCADIAN SKY DMX DAUGHTERBOARD



TERMINATION  
ON/UP = TERMINATED OFF

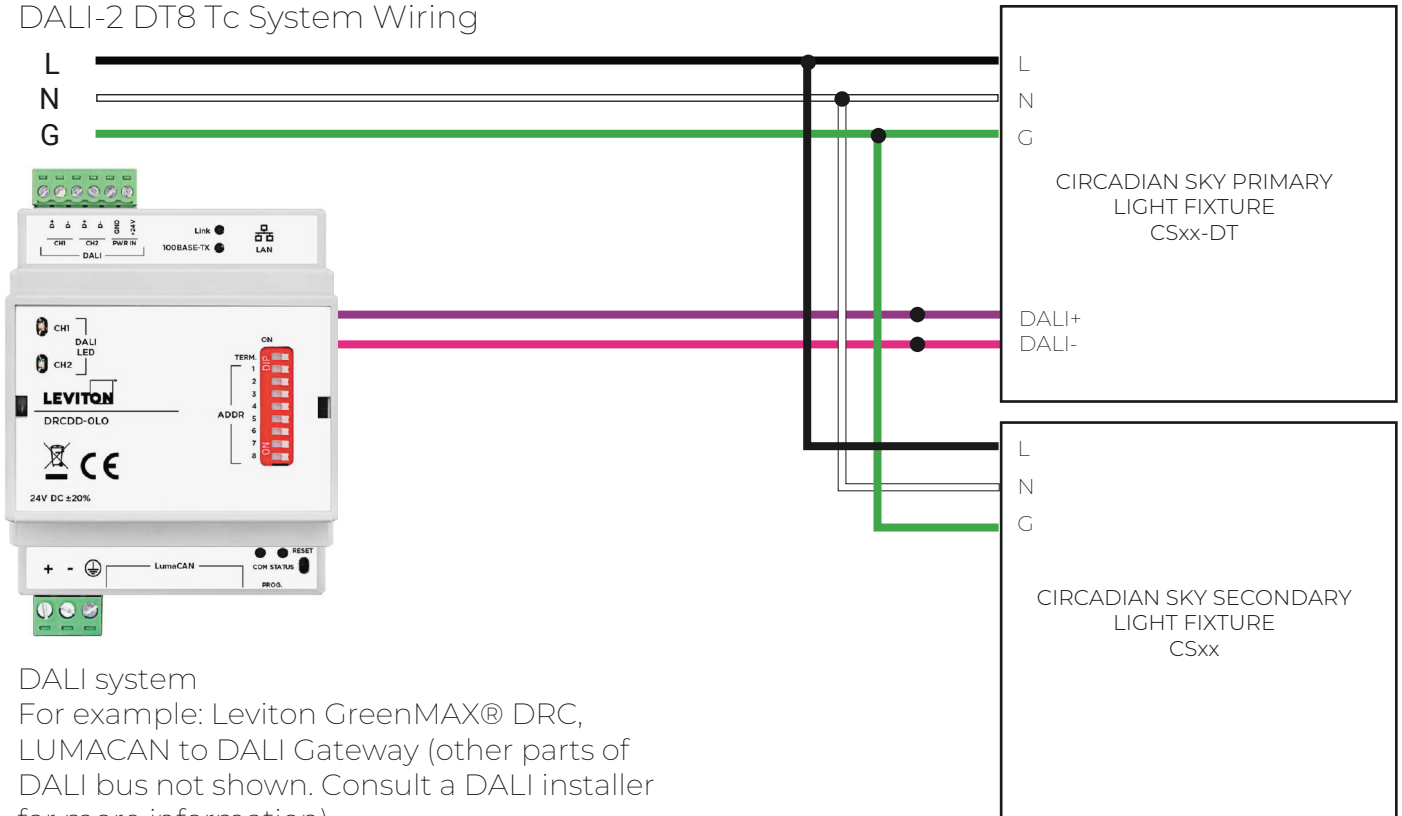
128 64 32 16 8 4 2 1  
OFF OFF OFF ON OFF OFF OFF ON

EXAMPLE OF CHANNEL 17 = 00010001

## DALI Controls

Caution: only DALI-2 DT8 Tc tunable white profile is supported.  
 For dual address DALI-1 please contact Innerscene support line.

### DALI-2 DT8 Tc System Wiring



### DALI system

For example: Leviton GreenMAX® DRC,  
 LUMACAN to DALI Gateway (other parts of  
 DALI bus not shown. Consult a DALI installer  
 for more information)