Installation Manual

International Variants
Product Codes: CS22INTG, CS22INTH, CS24INTG, CS24INTH, CS12INTG, CS12INTH, CS14INTG, CS14INTH

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 T™, 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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INNERSCENE
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What is in the box
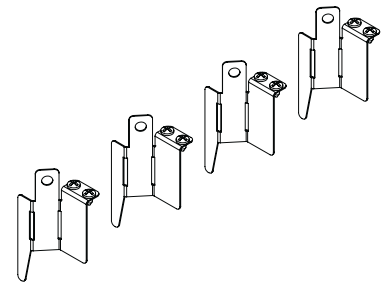
1x Circadian Sky light fixture
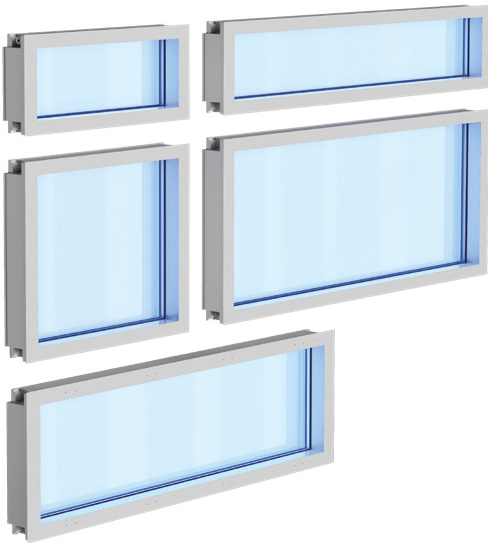
Optional accessories
(Available from Innerscene)

Circadian Sky Grid Mounting Kit:
Suitable for the following products: CS22IN-TG, CS24INTH, CS12INTG, CS14INTH
4x tee grid clips (compatible with Narrow 15mm or Standard 24mm exposed tees)
8x #6(3.5mm) x 1/4"(6.5mm) self-tapping screws

2-Foot Joist Mounting Kit:
Suitable for the following products:
CS22INTH, CS24INTH
2x 2' Ceiling joist mounting brackets
4x M6 bolts
4x M6 hex nuts
4x M6 hex lock nuts

1-Foot Joist Mounting Kit:
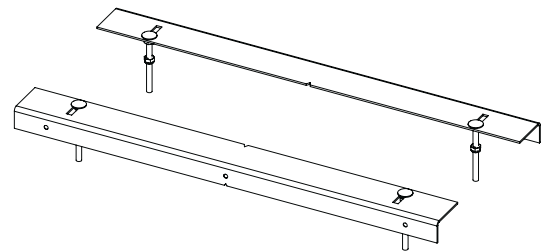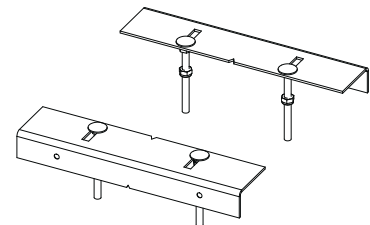Suitable for the following products:
CS12INTH, CS14INTH
2x 1' Ceiling joist mounting brackets
4x M6 bolts
4x M6 hex nuts
4x M6 hex lock nuts

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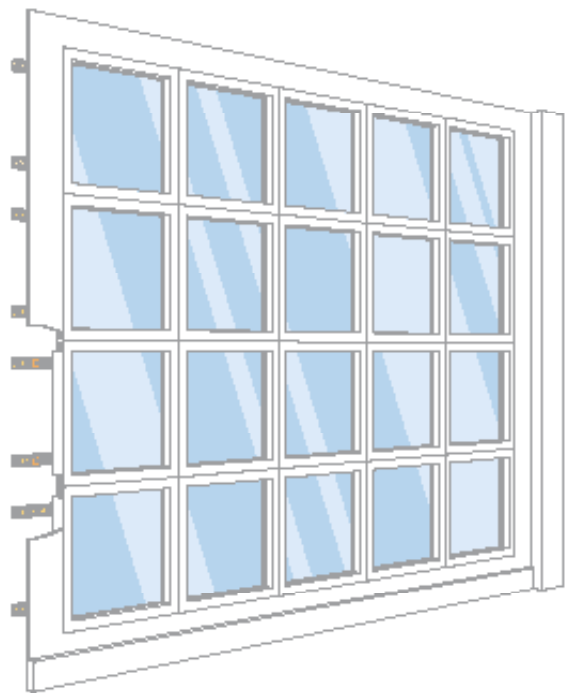# Recommended tools and materials for ACT/Grid/Suspended ceiling installs
(Supplied by others)

1) P.P.E. (Personal Protective Equipment)
2) Side cutter or wire stripper (to cut and strip wires)
3) Large flat head screwdriver (to open 20mm K.O.)
4) Pozidriv screwdriver or Pozidriv screwdriver bit (for Grid clips screws)
5) 1.5mm suspension wire
6) 0.5-2.5mm^2 power or lighting control cables. M20 90 Degree Cable Glands are required for tight two dimensional arrays. CPR-compliant or LSZH cables may be required in some territories.
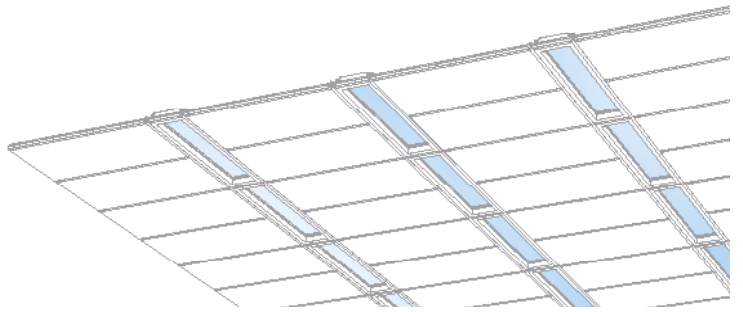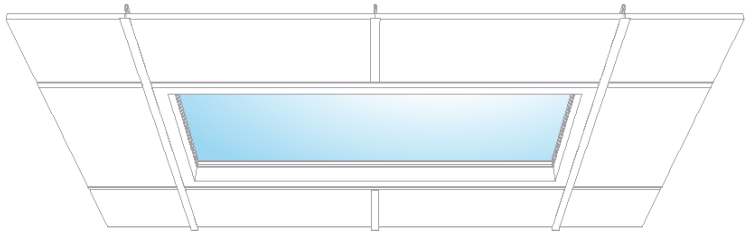
Recommended tools and materials for drywall/plasterboard installs
(Supplied by others)

1) P.P.E. (Personal Protective Equipment)
2) M6 hexagonal nut driver (nut spinner) with 10mm hex size
3) Plasterboard saw
4) Laser level (to align cut-out or when installing multiple fixtures)
5) Tape measure
6) Side cutter or wire stripper (to cut and strip wires)
7) Large flat head screwdriver (to open 20mm 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) 0.5-2.5mm^2 power or lighting control cables. M20 90 Degree Cable Glands are required for tight two dimensional arrays. CPR-compliant or LSZH cables may be required in some territories.

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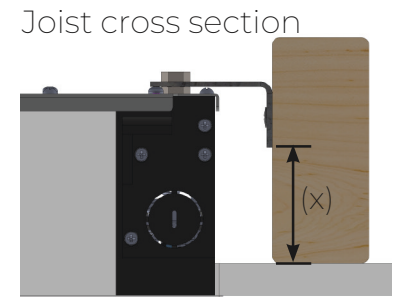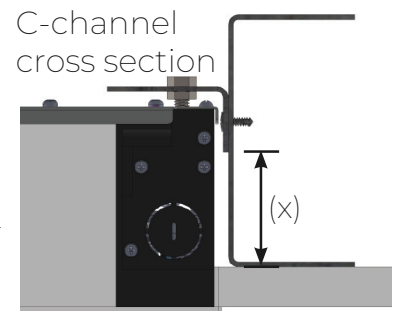
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Individual drywall/plasterboard installations with joists

Wood joist or metal channel
e.g. 47 x 100mm or 50 x 70mm Timber Joist
or 72mm or 92mm Partioning Metal Stud

Distance between
mounting faces
(599 to 607mm)

alignment
notch

6x No.8 - 10 (4-5mm)
wood screws or nails

Alternative ceiling constration
(Shown with 100mm C-channel)

Plasterboard
cut-out

cut-out
length
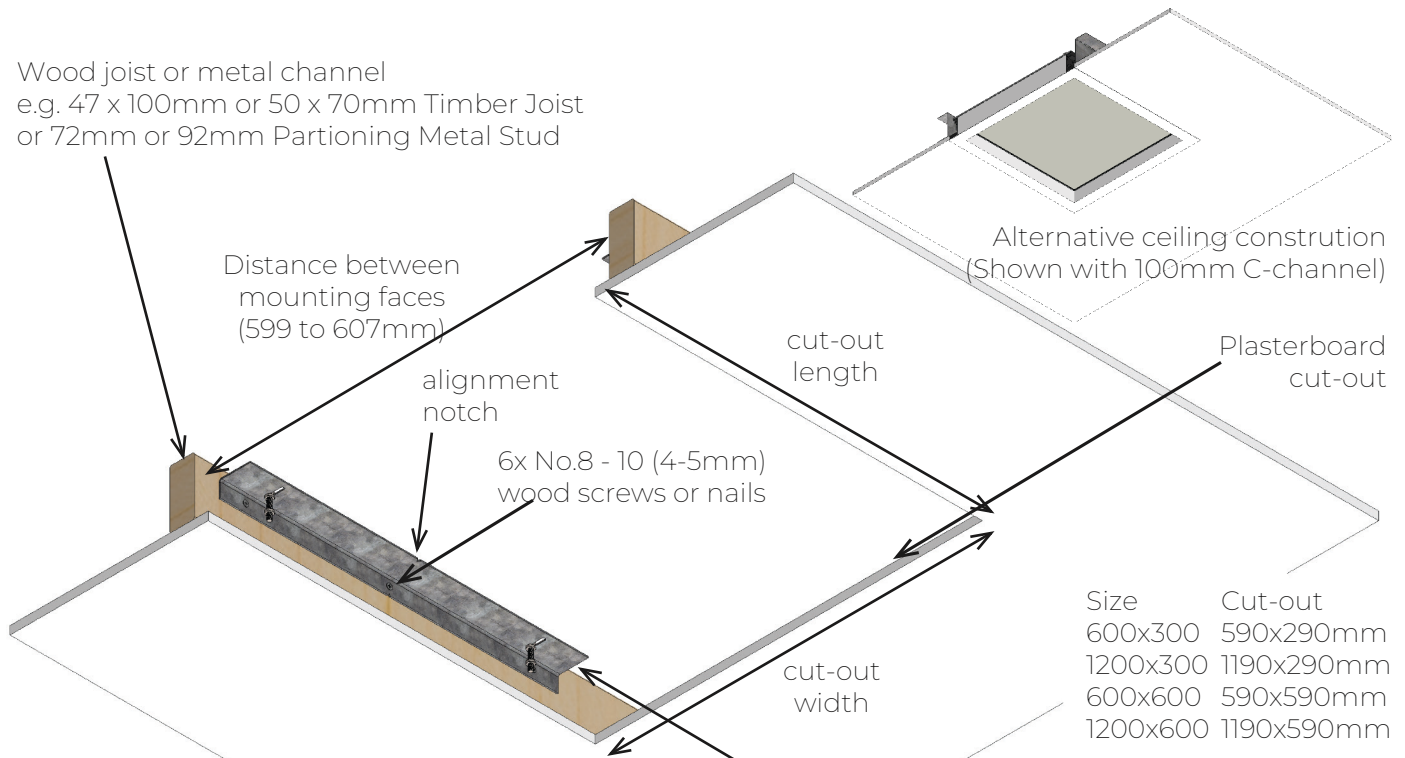
cut-out
width

Size	Cut-out
600x300	590x290mm
1200x300	1190x290mm
600x600	590x590mm
1200x600	1190x590mm

Joist mounting bracket
(optionally supplied by
Innerscene)

Circadian Sky
fixture

Safety
harness

adian Sky
wall trim

trim length
(B)

trim width
(C)

C-channel
cross section

(x)

Joist cross section

(x)
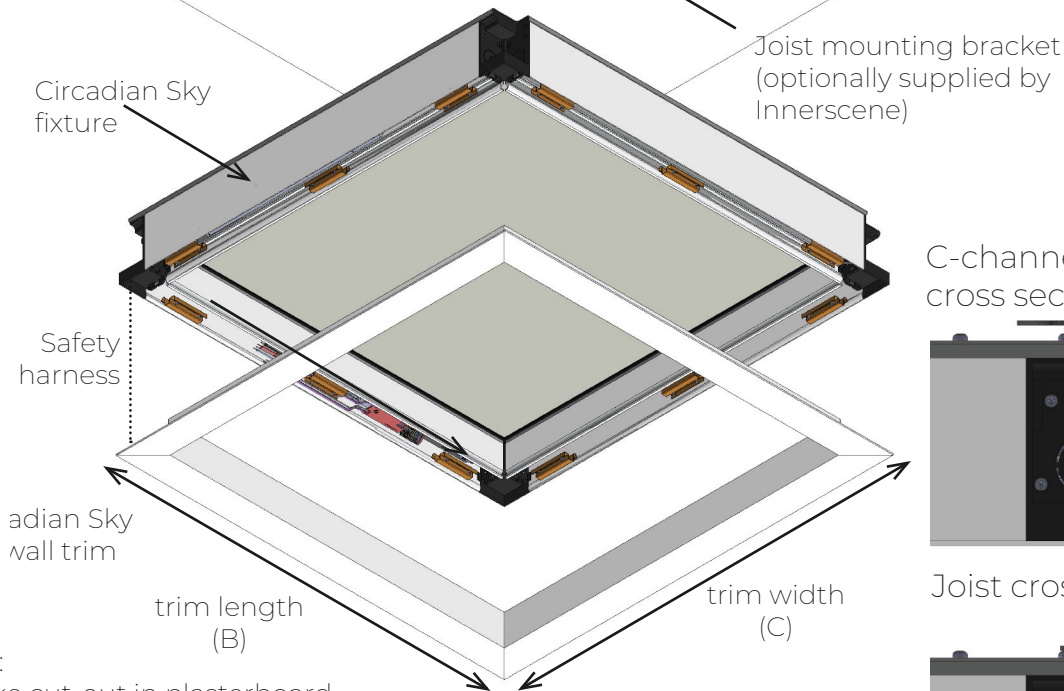
Bracket offset (x)

9.5mm plasterboard = 53mm
12.5mm plasterboard = 56mm
15mm plasterboard = 58.5mm

Steps:
1) Make cut-out in plasterboard.
2) For retrofit, existing joists may need to be modified with extra joist headers. Secure Joist mounting brackets to joist or channel.
4) Pull power or dimming wires to Primary fixture.
5) Route cables into cable gland and secure properly.
4) Raise fixture until bottom of fixture is level with finished ceiling.
5) Secure fixture to threaded bolts using hex nuts (M6 hex nut with 10mm AF width).
6) Clip safety harness of Drywall trim to fixture. Snap-fit Drywall trim to fixture.

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Individual drywall/plasterboard installs without wood joists

Size	Cut-out	Threaded rods spacings
600x300	590x290mm	
600x600	590x590mm	560x100mm
1200x300	1190x290mm	560x400mm
1200x600	1190x590mm	1160x100mm
		1160x400mm

threaded rod spacing (I)

cut-out length (F)

Plasterboard cut-out

threaded rod spacing (H)

cut-out width (G)

Circadian Sky fixture

4x Threaded rods to structure
M6 thread size (supplied by others)

Circadian Sky Drywall trim

Safety harness

trim length (B)

trim width (C)
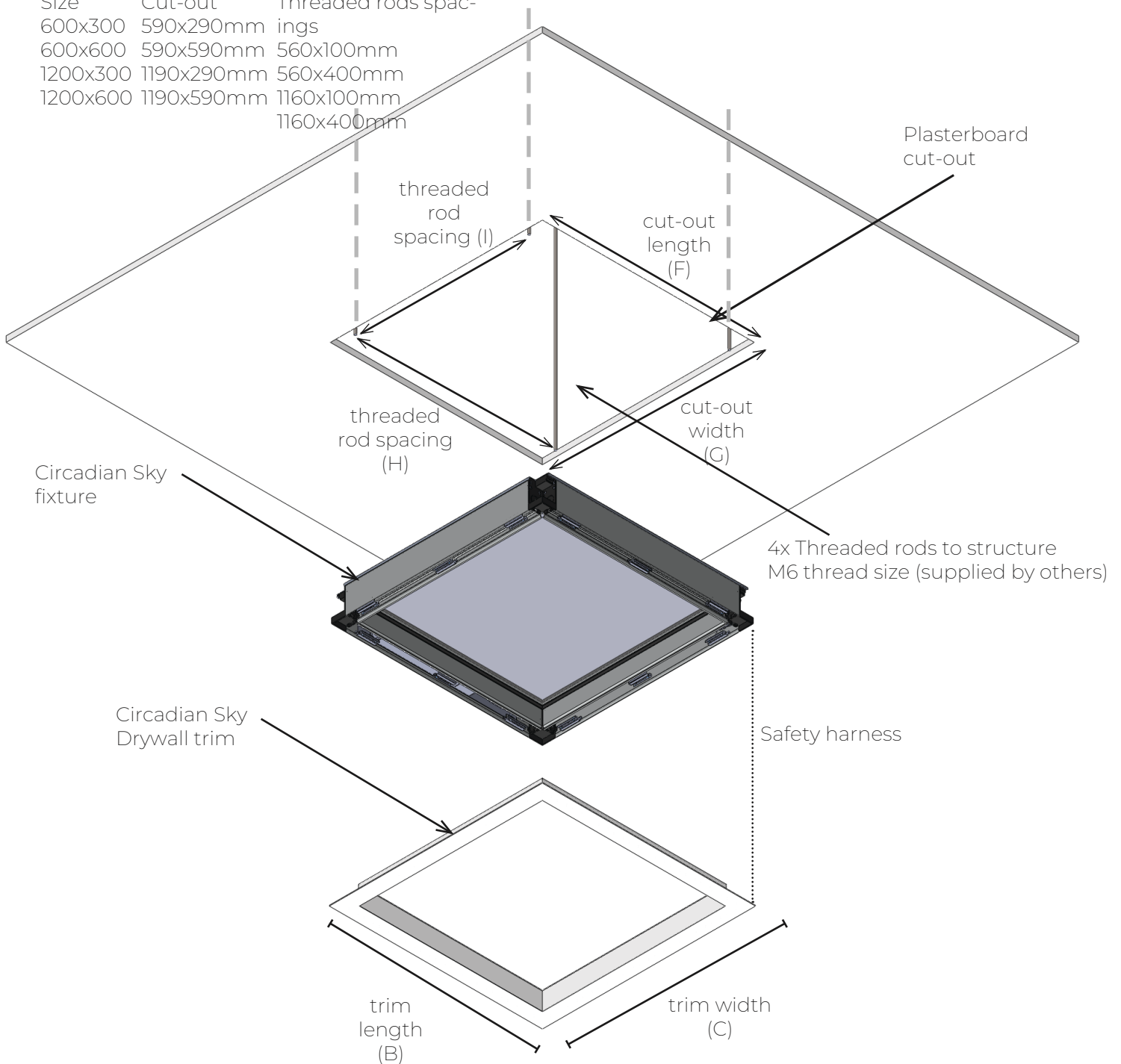
Steps:
1) Make cut-out in plasterboard.
2) Install fixing points to structure (concrete ceiling / beams / structural channels etc.)
3) Connect threaded rods to fixing points. M6 threaded rods are suitable.
4) Pull power or dimming wires to Primary fixture.
5) Connect wiring and secure cable to cable gland.
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.

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ACT/Grid/suspended ceilings installations

Main Runner/Main Tee Bar
(≤40mm web height)

suspension wire
to structure (optional)

Circadian Sky
fixture

Grid clips
(optionally
supplied by
Innerscene)

Circadian Sky
Grid trim

Safety
harness

Screw to housing

INNER

trim
length
(B)

trim width
(C)
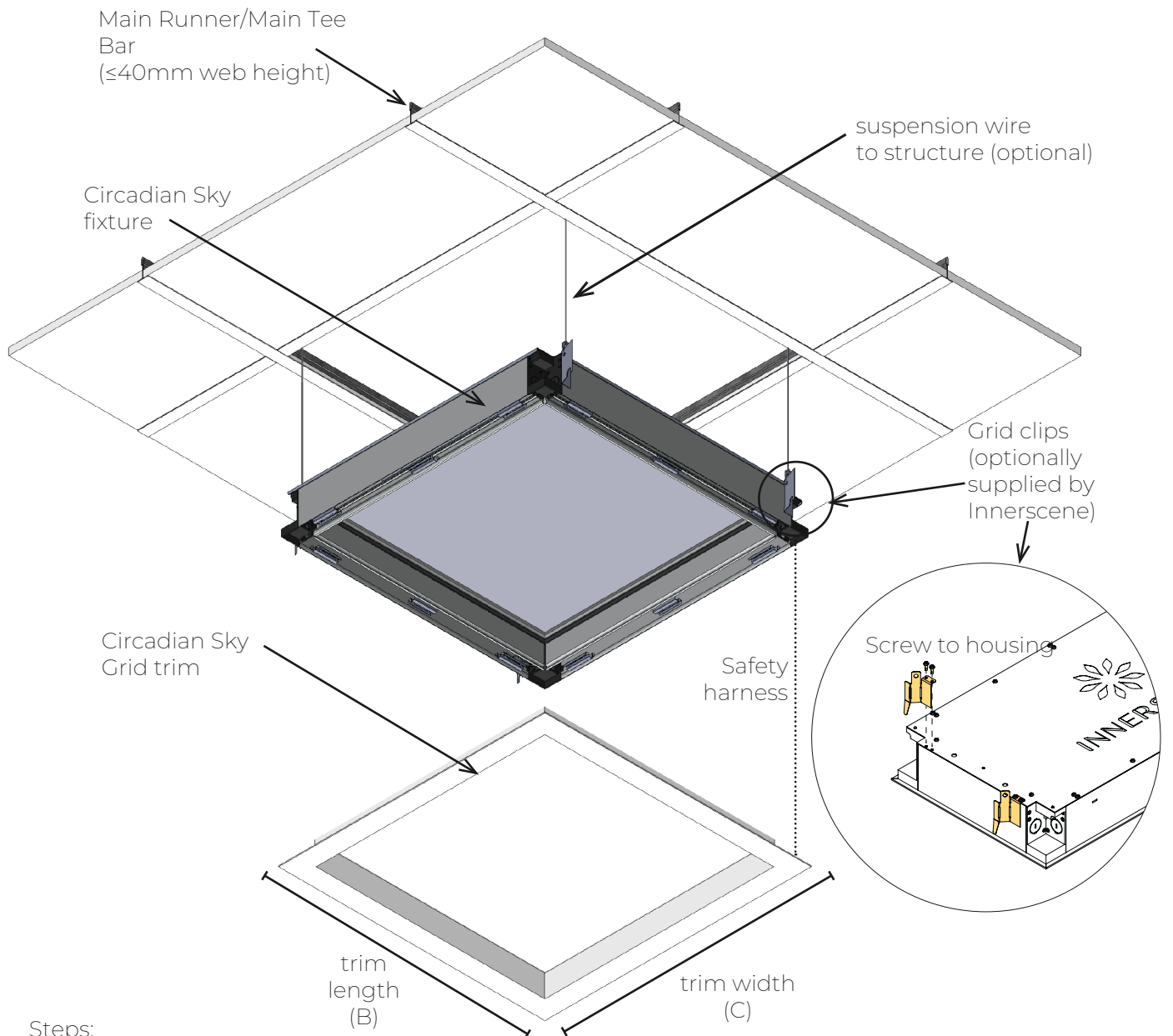
Steps:
1) Remove existing mineral tiles (if applicable)
2) Screw Grid clips to back of fixture using self-tapping screws (provided)
3) Connect building power and dimming wires (primary fixture only) to fixture
4) Secure cable gland
5) Snap-in fixture trim
6) Lay-in fixture above ceiling grid, align Grid clips to bulb of main runners/beams
7) Attach suspension wires (if deemed necessary, fixture weighs 13 kg per 600x600 size)

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Individual Vertical (In-Wall) installations

Mounting hardware
supplied by others

M6 studs

Nut

Channel washer

Unistrut channel

Drywall cut-out

Safety harness

Circadian Sky
Fixture

Drywall trim

Steps:
1) Make cut-out in plasterboard.
2) Install Unistrut channels (horizontally for wall applications)
3) Install 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) Connect wires and secure cables with cable gland.
7) Ease fixture into position until front is flush with finished face. Adjust backing nuts if needed.
8) Secure fixture to threaded rods using hex nuts. Locking nuts are optional.
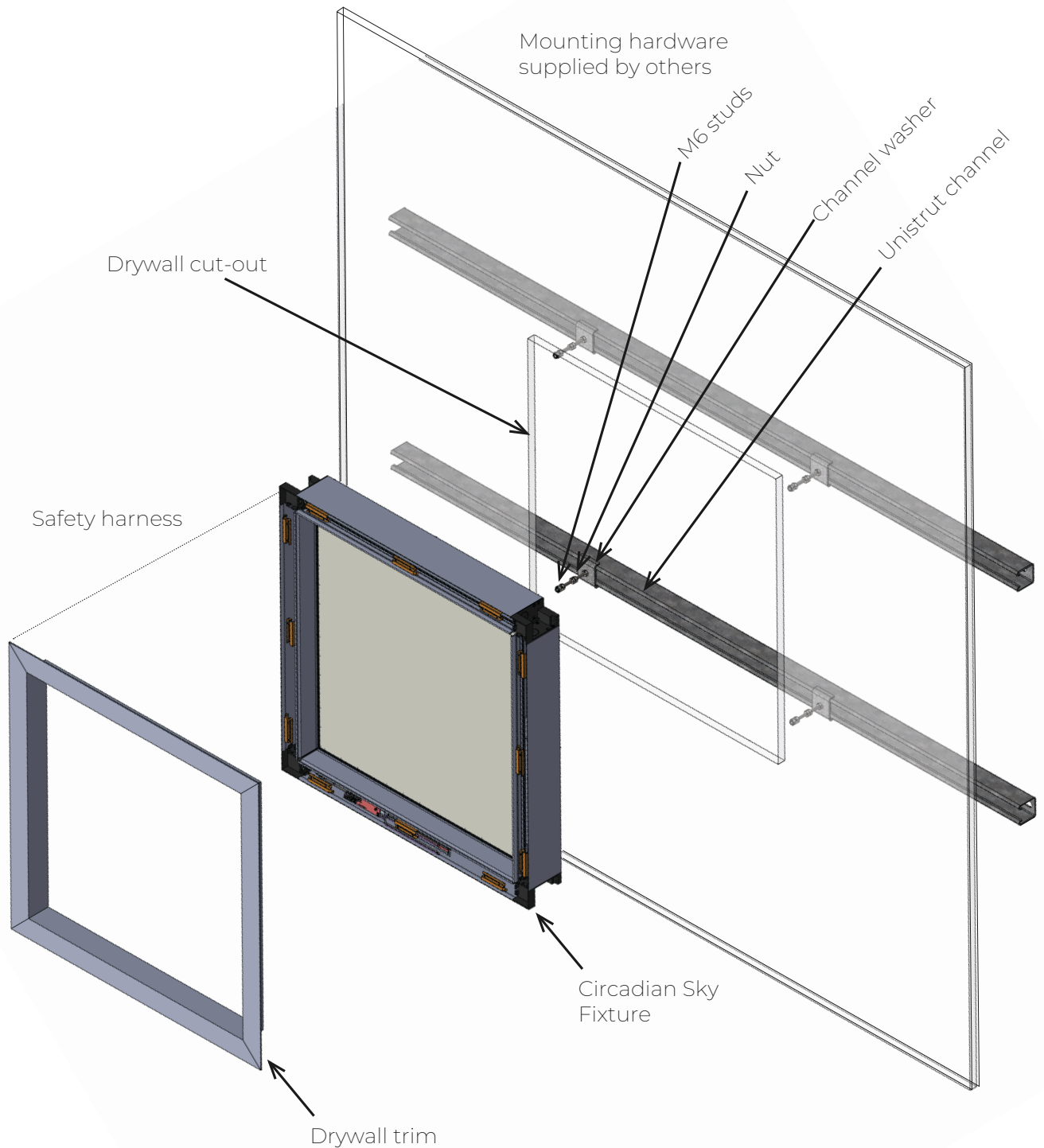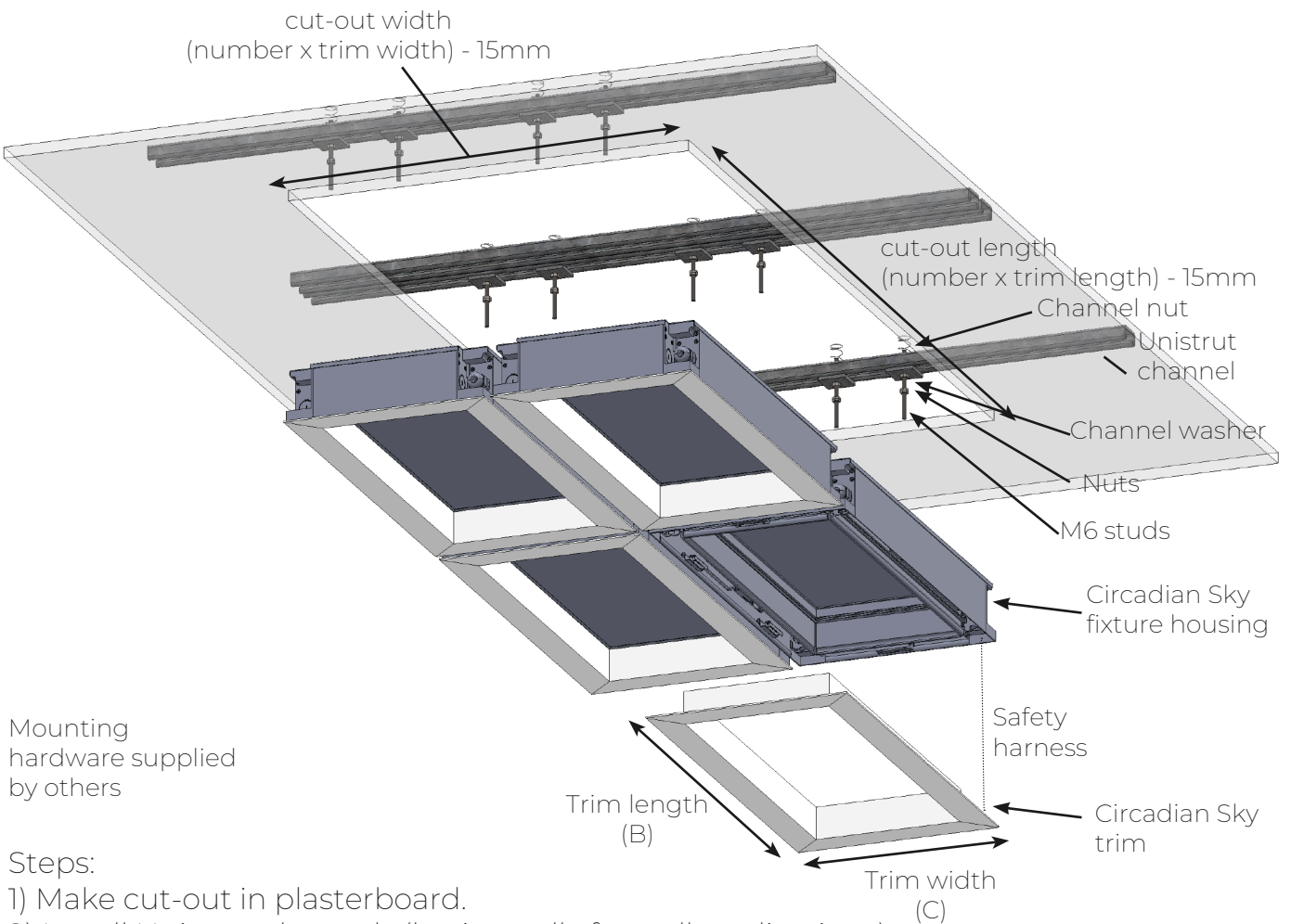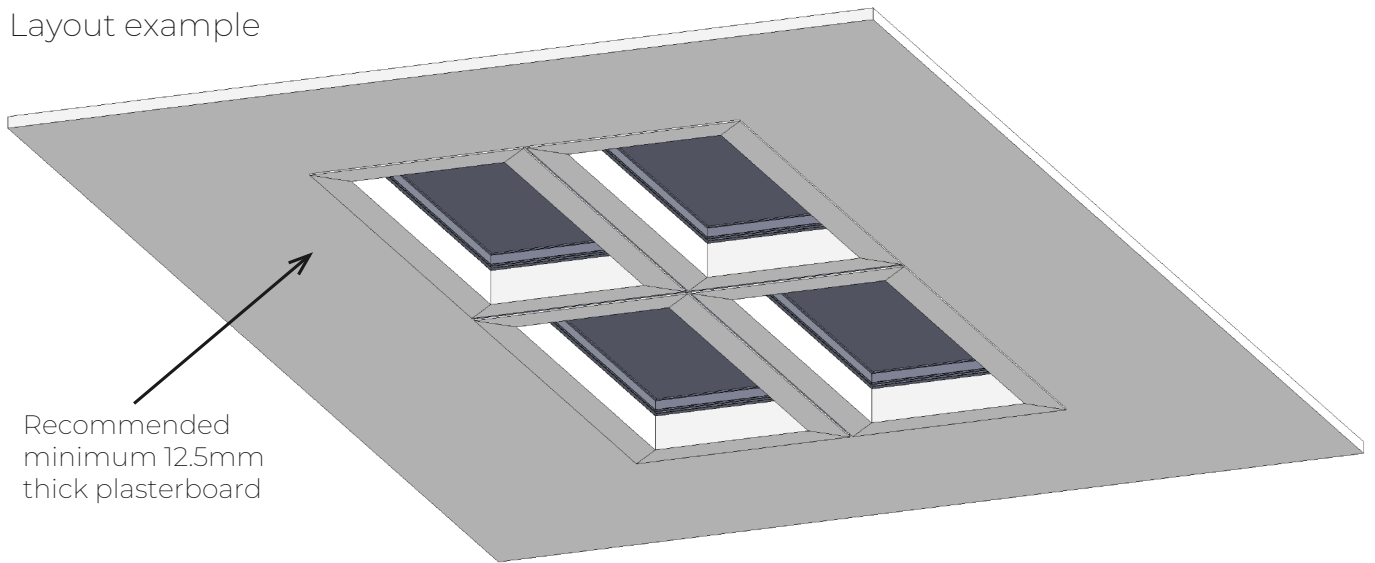9) Clip safety harness of Drywall trim to fixture. Snap-fit Drywall trim to fixture.

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Tight array with drywall/plasterboard ceilings or walls installations

Layout example

Recommended minimum 12.5mm thick plasterboard

cut-out width
(number x trim width) - 15mm

cut-out length
(number x trim length) - 15mm

Channel nut

Unistrut channel

Channel washer

Nuts

M6 studs

Circadian Sky fixture housing

Safety harness

Circadian Sky trim

Mounting hardware supplied by others

Trim length (B)

Trim width (C)

Steps:
1) Make cut-out in plasterboard.
2) Install Unistrut channels (horizontally for wall applications)
3) Install M6 studs to align with mounting holes in fixure.
4) Pull power or dimming wires to Primary fixture.
5) Connect wires and secure cables with Cable glands.
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.

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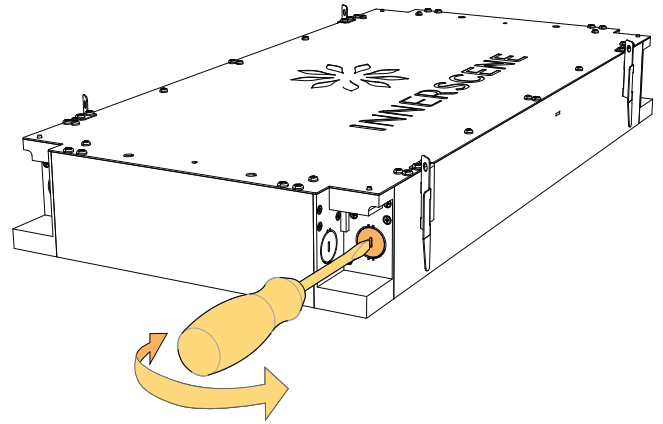
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Wiring

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

Open trim
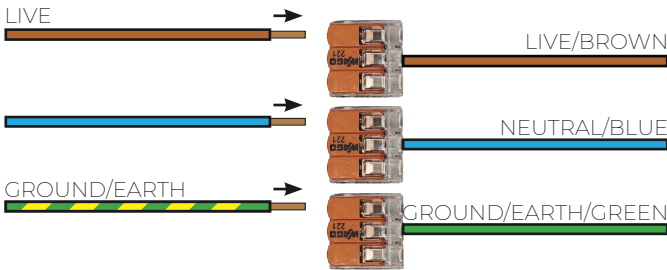
Pull open the snap-fit trim
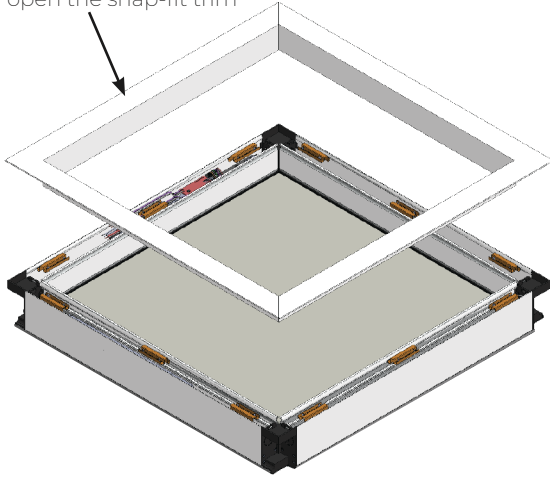
Break M20 K.O. (Knockout)

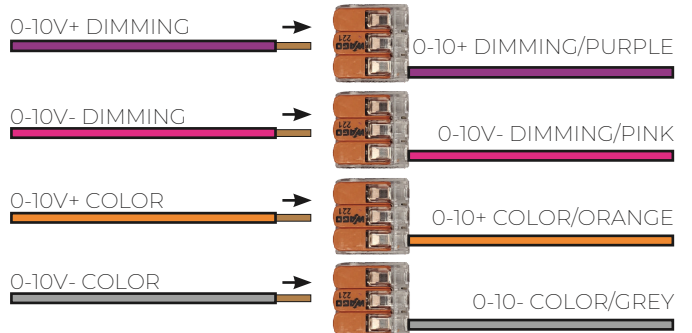## NORMAL POWER WIRING (All fixtures inc. Casambi)

BUILDING POWER	WIRING IN FIXTURE
LIVE	LIVE/BROWN
NEUTRAL/BLUE
GROUND/EARTH	GROUND/EARTH/GREEN

Wago Connectors (supplied)

1-10V DIMMING WIRING (Primary fixture-only)

BUILDING DIMMING	WIRING IN FIXTURE
0-10V+ DIMMING	0-10+ DIMMING/PURPLE
0-10V- DIMMING	0-10V- DIMMING/PINK
0-10V+ COLOR	0-10+ COLOR/ORANGE
0-10V- COLOR	0-10- COLOR/GREY

Wago Connectors (supplied)

Wiring DMX Tunable Sky (Primary fixture-only)

BUILDING DIMMING	WIRING IN FIXTURE
DATA+	DATA+/PURPLE
COM	COM/GREY
DATA-	DATA-/ORANGE
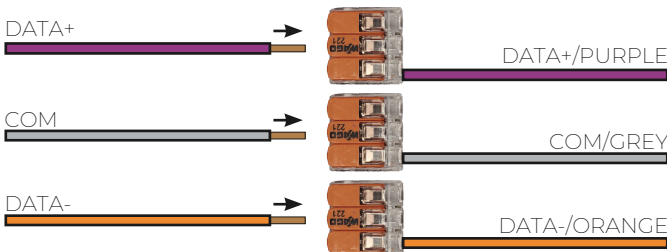
Wago Connectors (supplied)

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

BUILDING DIMMING	WIRING IN FIXTURE
DALI+	DALI+/PURPLE
DALI-	DALI-/PINK
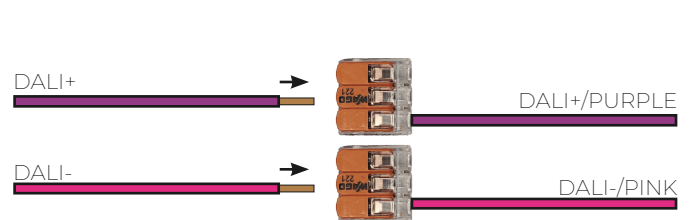
Wago Connectors (supplied)

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 0.75-4.0mm^2 when using the supplied Wago connectors.

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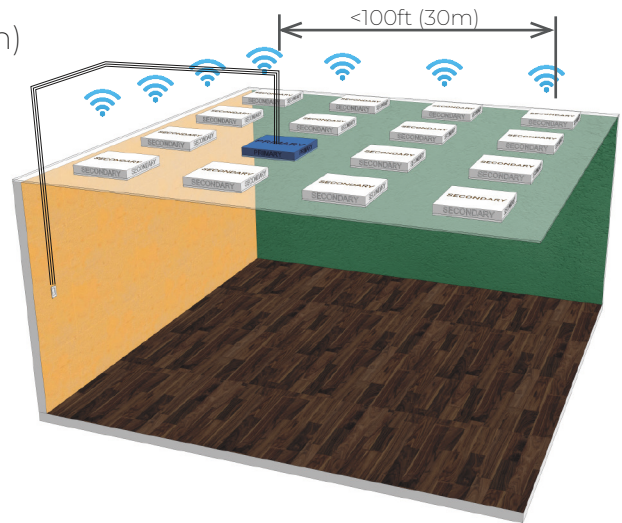
Innerscene Hardwired Fixtures (Recommended where individual control of each fixture is required, or if 2.4GHz wireless signal is not permitted such as high security or highly congested wireless environment. Contact Innerscene for more infomation)

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)

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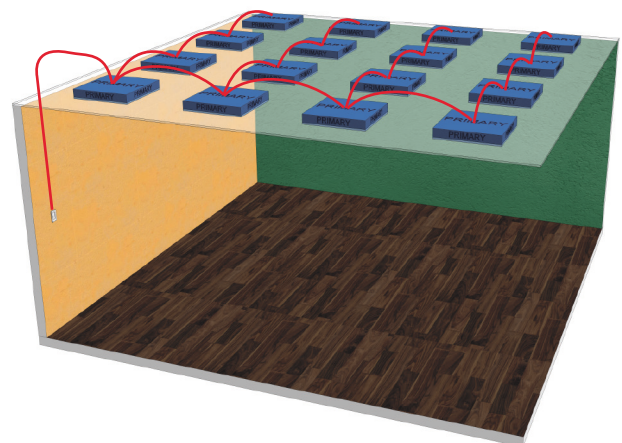
Commissioning

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, esure 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.

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Casambi Controls

Casambi offer a comprehensive ecosystem of wired and wireless controls to work with Innerscene light fixtures. For markets outside of North America, a battery powered wall switch is available in either black or white as shown below:
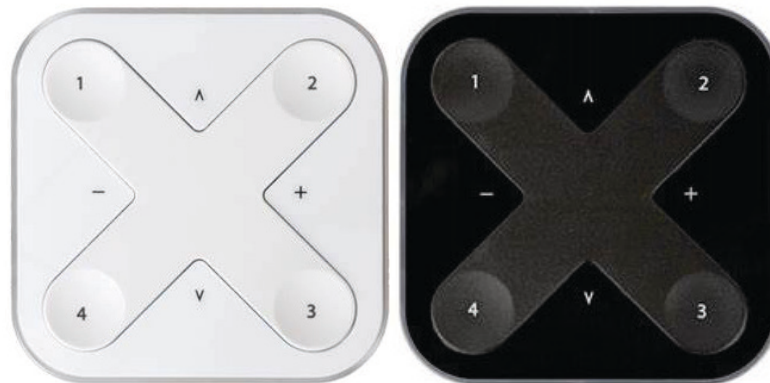
Casambi Xpress white and black

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.

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Dual channel 0-10/1-10V Controls

2-gang 1-10V dimmer switches (supplied by others)

Colour Gang
- +

Dimmer Gang
- +

SL
N
PE

CIRCADIAN SKY PRIMARY
LIGHT FIXTURE
CSxx-010V

L
N
G
Dim+
Dim-
Colour+
Colour-

CIRCADIAN SKY SECONDARY
LIGHT FIXTURE
CSxx

L
N
G

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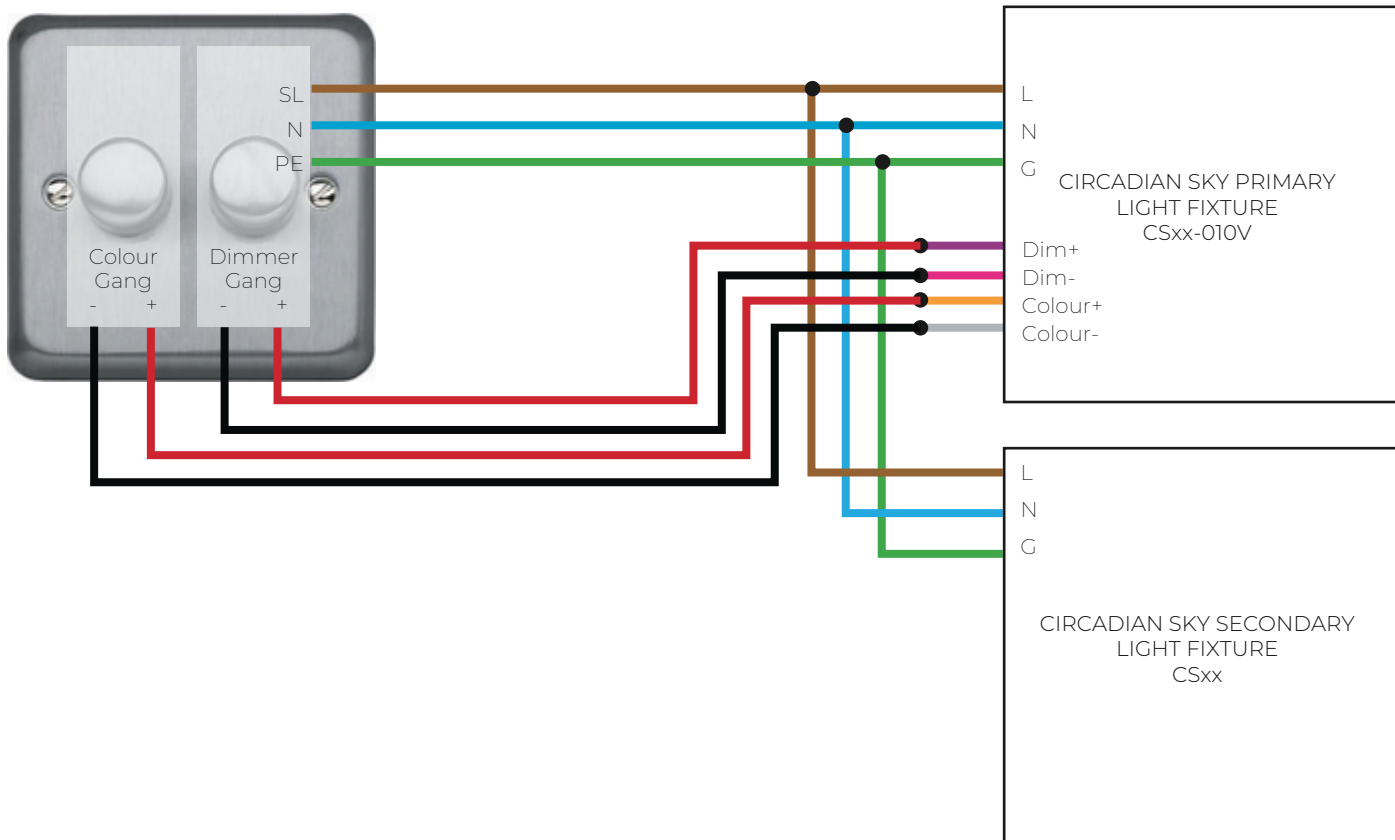
DMX Controls

DMX Wiring and Setup

DMX Controller/Console
For example: Helvar or Pharos

CIRCADIAN SKY PRIMARY
LIGHT FIXTURE
CSxx-DMX

CIRCADIAN SKY SECONDARY
LIGHT FIXTURE
CSxx
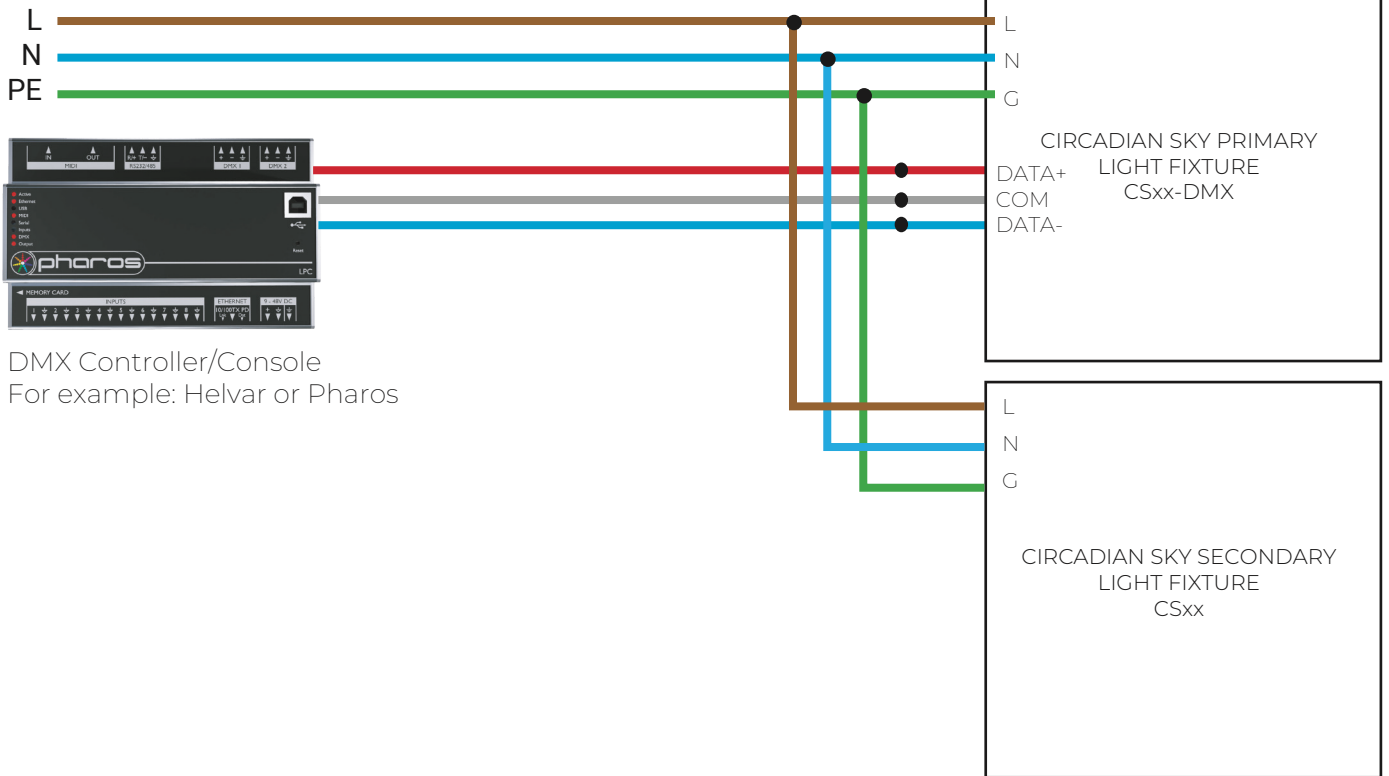
FOR INSTALLERS

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
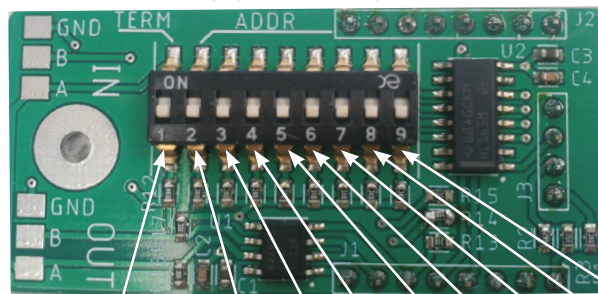
TERMINATION
ON/UP = TERMINATED OFF

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

EXAMPLE OF CHANNEL 17 = 00010001

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DALI Controls

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

High End DALI-2 DT8 Tc System Wiring

L
N
PE

CIRCADIAN SKY PRIMARY
LIGHT FIXTURE
CSxx-DT

L
N
G

DALI+
DALI-

L
N
G

CIRCADIAN SKY SECONDARY
LIGHT FIXTURE
CSxx

DALI Control Systems: e.g. Lutron HomeWorks with Lutron DALI
Module
LQSE-2DALUNV-D. Or Lutron Athena
Lutron Energi Savr Node DALI® Universal QSN-2DALUNV-D

Basic DALI-2 DT8 Tc System Wiring

L
N
PE

CIRCADIAN SKY PRIMARY
LIGHT FIXTURE
CSxx-DT

L
N
G

DALI+
DALI-

L
N
G

CIRCADIAN SKY SECONDARY
LIGHT FIXTURE
CSxx

Tunable White Control Panel
e.g. Osram DALI MCU TW

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