

D3

Installation Guide



Models

D3-FXRD

D3-ADRD

D3-WWRD

D3-FXSQ

D3-ADSQ

D3-WWSQ

Warning

Shock Hazard. May result in serious injury or death.

Turn power OFF at circuit breaker or remove fuse. Damage to this product caused by wiring with power on voids the warranty.

Due to the risk of electric shock, a licensed electrician should install this power supply unit in strict compliance with the National Electrical Code and any state or local code which may apply.

FCC/ IC Information:

This device complies with part 15 of the FCC Rules and Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions:

- (1) This device may not cause interference, and
- (2) this device must accept any interference, including interference that may cause undesired operation. Modifications not expressly approved by Lutron Electronics Co., Inc. could void the user's authority to operate this equipment.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help

This Class B digital apparatus complies with Canadian ICES-003.

Information de la FCC/ IC :

Ce dispositif est conforme à la section 15 des règlements du FCC et des standards CNR exempt de licence d'Industrie Canada. L'opération est sous réserve des deux conditions suivantes :

- (1) Cet appareil ne peut causer d'interférence nuisible, et
- (2) Cet appareil doit tolérer toute interférence, même celle pouvant affecter son fonctionnement. Tout changement ou modification sans l'autorisation expresse de Lutron Electronics Co., Inc. pourrait annuler le droit d'utiliser cet équipement.

REMARQUE : Cet équipement a été testé et jugé conforme aux limites applicables aux dispositifs numériques Classe B, conformément à la section 15 des règles de la FCC. Ces limites sont conçues pour procurer une protection raisonnable contre les perturbations nuisibles en application résidentielle. Cet équipement génère, utilise et peut radier l'énergie de fréquences radiophoniques. S'il n'est pas installé et utilisé selon les directives, peut causer des interférences radiophoniques nuisibles. Cependant, il n'y a aucune garantie qu'aucune interférence ne se produira dans une installation précise. Si votre équipement produit de l'interférence à la réception radiophonique ou télévisuelle, ce qui peut être détecté en coupant et refermant l'alimentation au système d'éclairage. Dans le cas d'interférence, l'utilisateur sera contraint d'essayer de corriger la situation par un ou plusieurs des moyens suivants ::

- Réorienter ou re-localiser l'antenne de réception
- Augmenter la distance séparant l'équipement et le récepteur
- Brancher l'équipement sur un circuit différent que celui sur lequel le récepteur est branché
- Demander l'aide du distributeur ou d'un technicien expérimenté en radio et télévision

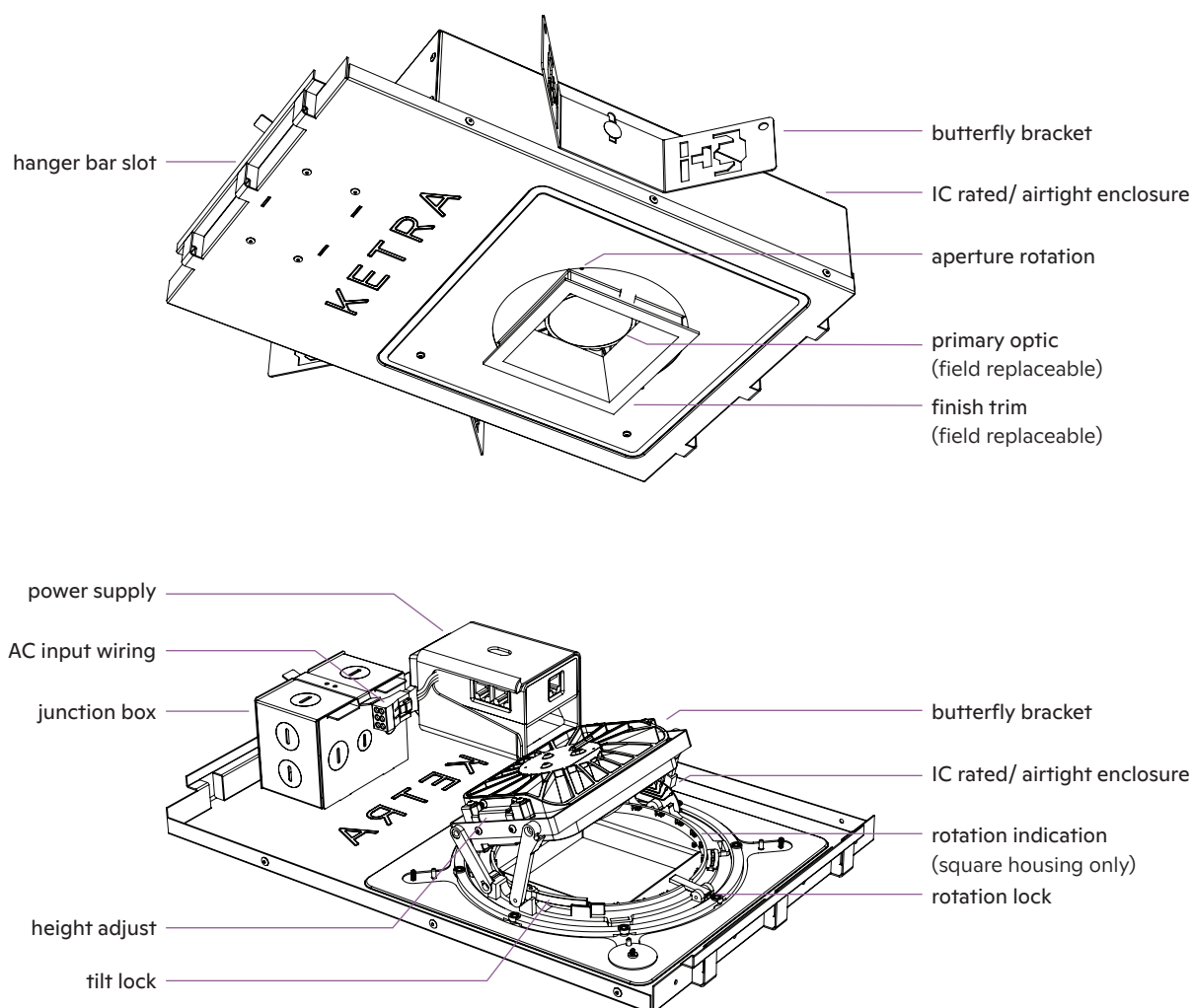
Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

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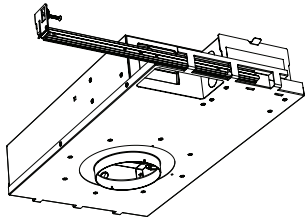
Product Overview

Ketra's D3 family includes fixed, adjustable, and wall-wash downlights. Every model features a low-profile housing, wireless communication, and field-replaceable optics and electronics. With a wealth of trim and optic accessories, the D3 is ideal for a large variety of applications. It uses a fully-tunable spectrum capable of delivering high-quality white, saturated, and pastel light.

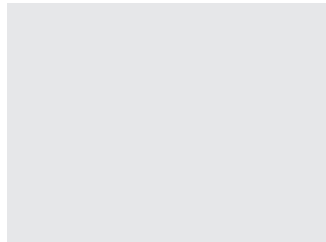


Included Components/Supported Models

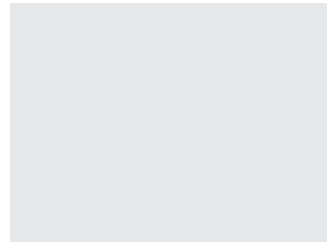
Included Components



Housing with Emitter & Optic
(Models as specified)



(2) Butterfly Brackets
(2) Nailer Bars
(3) Wire Nuts



Trim (Model as specified)

Supported Models

D3-FXRD

D3-ADRD

D3-WWRD

D3-FXSQ

D3-ADSQ

D3-WWSQ

¹ For instructions on setting default states in Design Studio, see the Design Studio Manual available on our website. The manual has sections dedicated to emergency mode and setting default states for Ketra lights

Specifications

Optical Performance

Delivered Lumen Output

Beam Angle (1" / 25.4mm recess)	9W	13W	18W
15° beam low glare	650 lm	882 lm	1092 lm
25° beam, low glare	623 lm	845 lm	1046 lm
40° beam, low glare	569 lm	772 lm	955 lm
60° beam, low glare	561 lm	760 lm	941 lm
15° beam high output	682 lm	928lm	1148 lm
25° beam, high output	678 lm	923 lm	1142 lm
40° beam, high output	646 lm	878 lm	1087 lm
60° beam, high output	630 lm	857 lm	1061 lm

CRI (Ra)3	>90 (R9>90) 2400K-5000K TYP
Lumen Maintenance	50,000 hours to L70 @ 25°C T _A
Color Spatial Uniformity	<2 MacAdam ellipses across field angle
Color Point Range	1400°K–10,000°K, Fully Saturated, & Pastel
Equivalent Traditional Lamp	75W halogen
Dimming Range	0.1–100% lm
Power Consumption	D3.13 13 W D3.18 18 W
Voltage*	120 ~ 60 Hz 220-277 ~ 60 Hz 220-277 ~ 50 Hz
Power Factor	>0.9
Current	150 mA Max

Delivered Efficacy

Beam Angle (1" / 25.4mm recess)	9W	13W	18W
15° beam low glare	72 lm/W	68 lm/W	61 lm/W
25° beam, low glare	69 lm/W	65 lm/W	58 lm/W
40° beam, low glare	63 lm/W	59 lm/W	53 lm/W
60° beam, low glare	62 lm/W	58 lm/W	52 lm/W
15° beam high output	76 lm/W	71 lm/W	63 lm/W
25° beam, high output	75 lm/W	71 lm/W	62 lm/W
40° beam, high output	72 lm/W	68 lm/W	59 lm/W
60° beam, high output	70 lm/W	66 lm/W	58 lm/W

Surge Protection	2.5 KV
Control Protocol	KetraNet Mesh

Environmental

Operating Temperature	0 - 40 °C
Storage Temperature	-20 - 80 °C
Humidity	0 - 95%, Non-condensing
Certification	UL, cUL, RoHS, FCC Class B
Location	UL Damp Location, UL Wet Location Available with Lens Trim

Electrical

Mounting Options	Hanger Bars / Butterfly Brackets
Field Replaceable Optics	Yes
Field Replaceable Light Engine	Yes
Field Replaceable Power Supply	Yes
Additional Optic Lens Holder	2.5"/63.5 mm Lens, 1/8"/3.175 mm Thick
Additional Trim Lens Holder	2.75"/69.85 mm Lens, 1/8"/3.175 mm Thick
Housing Material	Powder Coated Steel, Polymer
Lens Material	Glass

Dimensions

Ceiling Hole Diameter	4" / 101.6 mm Flanged, 5.5" / 139.7 mm Mud-In
Trim Outside Diameter	4.62" / 117.348 mm
Trim Inside Diameter	3.75" / 95.25 mm
Trim Thickness	1/16" / 1.5875 mm
Optics Outside Diameter	2.5" / 63.5 mm
Trim Depth	1" / 25.4 mm
Ceiling Thickness	0.625" - 1.5" / 15.875 - 38.1 mm
Emitter Vertical Adjustment (tool-free)	0.75" / 19.05 mm
Housing Vertical Adjustment via Butterfly Bracket	1.75" / 44.45mm
Housing Height	3.50" / 88.9 mm
Housing Length	18.38" / 466.852 mm
Housing Width	10.07" / 255.778 mm

* Ketra lighting products should not be connected to, or directly controlled by, AC mains line voltage dimmers. These types of dimmers may also be referred to as phase cut, triac, forward-phase, reverse-phase, ELV, or MLV dimmers. Ketra's lighting products should only be controlled via our digital control architecture. Ketra does not recommend switching power on/off to Ketra lighting products via relays, contactors, or manual toggle switches. When the lighting products are disconnected from power they cannot respond to digital commands from control devices. This could confuse end users as the lighting may be in a state that is inconsistent with the control devices. Please refer to our controls products installation guides for more information.

Installation

All touch-points inside the D3 housing are colored red.

All customer-accessible screws are Phillips.

Part 1: Mount the D3

Mounting can be done with either nailer bars or butterfly brackets.

Option 1 Nailer Bars



- Allow horizontal movement post-mounting
- Ideal with wooden studs or t-grid ceilings

Option 2 Butterfly Brackets



- Allows horizontal or vertical movement post-mounting
- Ideal for commercial settings

continued on next page

INSTALLATION

Option 1

MOUNTING WITH NAILER BARS

1. Attach nailer bars
 - a. If ceiling thickness is $\frac{3}{4}$ " (19.05 mm) or greater: Use pliers to break off the tabs at the end of both nailer bars. (see fig. 1)
 - b. Insert the inner nailer bar into the three housing clasps on the end of the D3 housing. Make sure the screw is on top. (see fig. 2)
 - c. Insert the outer nailer bar into the same housing clasps, locking the inner and outer halves together. Make sure the screw is on top. (see fig. 3)
 - d. Repeat steps 1-2 for the clasps on the other end of the housing

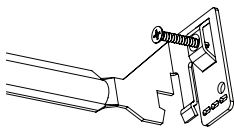


fig. 1 (optional)

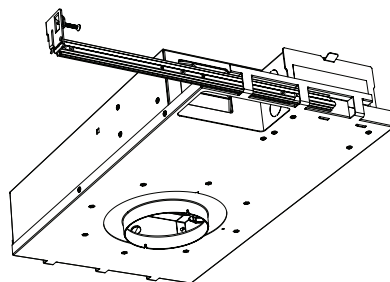


fig. 2

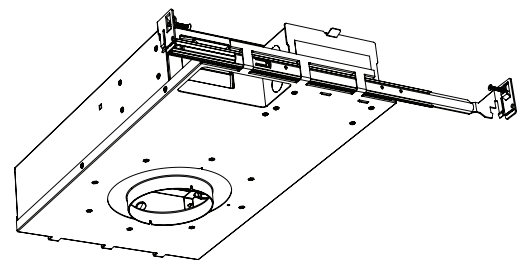


fig. 3

2. Mount downlight in the ceiling

Note: For optimal radio communication, ensure that the radio dome is not above or adjacent to anything metallic.

- a. Use a level to ensure the nailer bars are parallel to the ground.

Note: The D3's collar needs to be flush to the ceiling plane or $\sim\frac{1}{16}$ th inches (1.5875 mm) above it.

- b. Screw the ends of both bars into the wooden joists, fixing the housing in place. (see fig. 3)
- c. T-Grid ceiling only: Bend the tabs on the nailer bars to lock them to the t-grid. (see fig. 4)

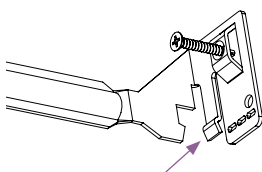


fig. 4

INSTALLATION

3. *Optional:* If installing a square fixture, loosen the collar's two outer screws, freeing the collar for rotation, which then can be aligned to the fixtures per design.
 - a. Realign the collar using its v-shaped notches and an alignment string or laser.
 - b. Re-tighten the screws to lock the collar's new position.

Option 2

MOUNTING WITH BUTTERFLY BRACKETS

1. Reposition emitter chassis
 - a. Remove the cardboard plug from the D3's aperture.
 - b. Wall-wash downlight only: Carefully remove the optic and kick by turning counter-clockwise 9 degrees and pulling.

Note: If you remove the optic, be careful not to touch the exposed emitter.

- c. Unlock the tilt lock by pulling it toward the fixture aperture. The tilt lock is the red, horizontal lever to the right or left side of the emitter chassis body. (see fig. 5)
- d. Unlock the rotation lock by pulling it toward the fixture aperture. The rotation lock is the red, vertical lever across from the emitter chassis body. (see fig. 6)
- e. Tilt and rotate the emitter chassis to open an unobstructed path to the butterfly bracket openings on either side of the housing.

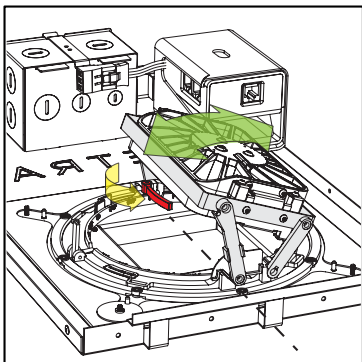


fig. 5

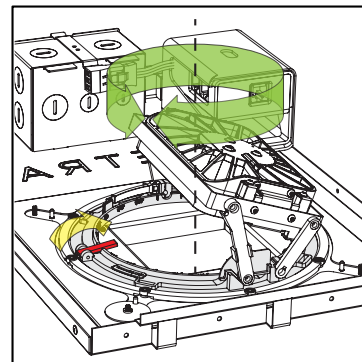


fig. 6

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INSTALLATION

2. Attach butterfly brackets
 - a. Outside the housing, undo the red wing nut and washer attached to the first butterfly bracket's bolt.
 - b. Run the bracket's bolt through the hole in the side of the housing. (see fig. 7)
 - c. Reaching into the housing, thread the washer and red wing-nut back onto the bolt, fixing the bracket in place.
 - d. Repeat steps 5-7 for the second butterfly bracket.

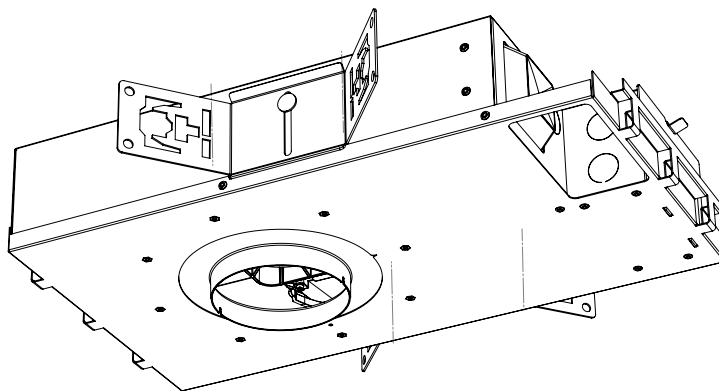


fig. 7

3. Restore original emitter chassis conditions
 - a. Return the emitter chassis to its original position, locking the tilt and rotation locks.
 - b. Wall-wash downlight only: Reattach the optic. Press it flush to the base of the emitter chassis and turn it clockwise until it engages the shoulder screws on either side of the emitter. Note that the opening in the c-shaped kick reflector should face the wall.
 - c. Reinsert the cardboard plug to protect the optic from dust during the rest of the installation.

continued on next page

INSTALLATION

4. Mount downlight in ceiling

Note: For optimal radio communication, ensure that the radio dome is not above or adjacent to anything metallic.

- a. Use bar stock or C-Channels (not provided) to mount the D3 in the ceiling. The supports should go through the holes in the butterfly brackets and can be used to suspend the D3 without screws. (see fig. 8)

Note: After mounting, the D3's collar will need to be flush to the ceiling plan or $\sim\frac{1}{16}$ th (1.5875 mm) inches above it.

- b. Wire-tie at least one bracket to the deck using at least one tie.

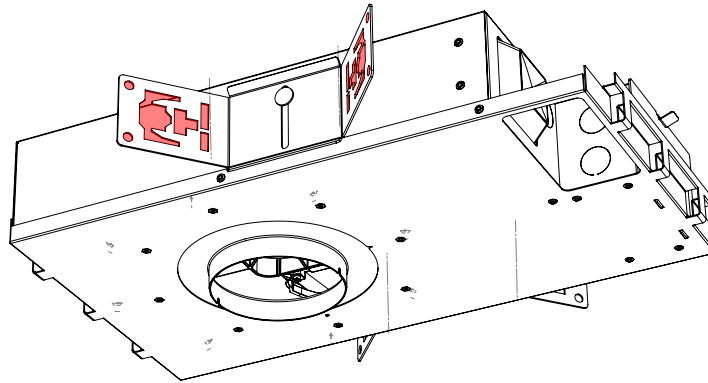


fig. 8

5. *Optional:* If installing a square fixture, loosen the collar's two outer screws, freeing the collar for rotation, which then can be aligned to the fixtures per design.
 - a. Realign the collar using its v-shaped notches and an alignment string or laser.
 - b. Re-tighten the screws to lock the collar's new position.

Part 2: Wire the Fixture

1. Run power to junction box

- a. A. Remove the junction box's outer cover by pressing down on the outer latch and pulling the cover toward you.

Note: A licensed electrician should perform all the wiring tasks. All electrical connections must be made within the junction box.

- b. Run the conduit in (and out, if this is one downlight in a sequence).

Note: Maximum of (8) 12 AWG through branch circuit conductors suitable for 75° C permitted in the box.

- c. Run the building's power line wires* into the junction box.

2. Splice wires

- a. Using the provided wire nuts, splice the D3's flying leads into the building's power. Make sure the housing is grounded in accordance with local codes.
- b. Replace the junction box's outer cover.

3. Test wiring

- a. Apply power to the D3. The emitter should immediately come on to 3000 K (warm white).

Note: If the emitter comes on red, see Diagnostic Colors, page 18.

- b. Wait several minutes while the D3 tests its installation conditions. Then use the color to

- c. determine whether installation was successful:

- If the light stays at 3000 K, installation was successful. Continue to step 8.
- If the light changes color, a problem has been detected.

Note: Magenta can indicate success or failure. It indicates success if there are no other powered-on Ketra devices within 50 ft (15.24 m); otherwise, it indicates a problem.

To troubleshoot problems, see Diagnostic Colors, page 18.

- d. After verifying a successful installation, remove power and continue to **Part Three**.

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Part 3: Installing Sheetrock

1. Ensure that the aperture is plugged with the cardboard insert to protect the optic.
2. Cut properly-sized hole in sheetrock before installing sheetrock. Reference table for sizes.

Type	Hole shape and size
Mud-In	Circle with 5.5" (139.7 mm) diameter
Flanged with square aperture	Square with 4" (101.6 mm) length/width
Flanged with round aperture	Circle with 4" (101.6 mm) diameter

3. Align the hole with the D3's aperture and install the sheetrock

Part 4: Apply Spackle Flange Trim Retainer (Mud-In Only)

Note: Skip this section if you have a flanged downlight.

1. Align the retainer assembly such that the holes in the retainer line up with the screw posts in the collar. (see fig. 9)
2. Secure the retainer assembly using the #6-32 fasteners. For ceiling thickness in range $\frac{5}{8}$ " (16.129 mm) to 1- $\frac{1}{8}$ " (28.575 mm), use the blue coded short set; for ceiling thickness in range $\frac{7}{8}$ " (225.425 mm) to 1- $\frac{1}{2}$ " (38.1 mm), use the red coded long set.

Note: The retainer assembly should be flush with the drywall.

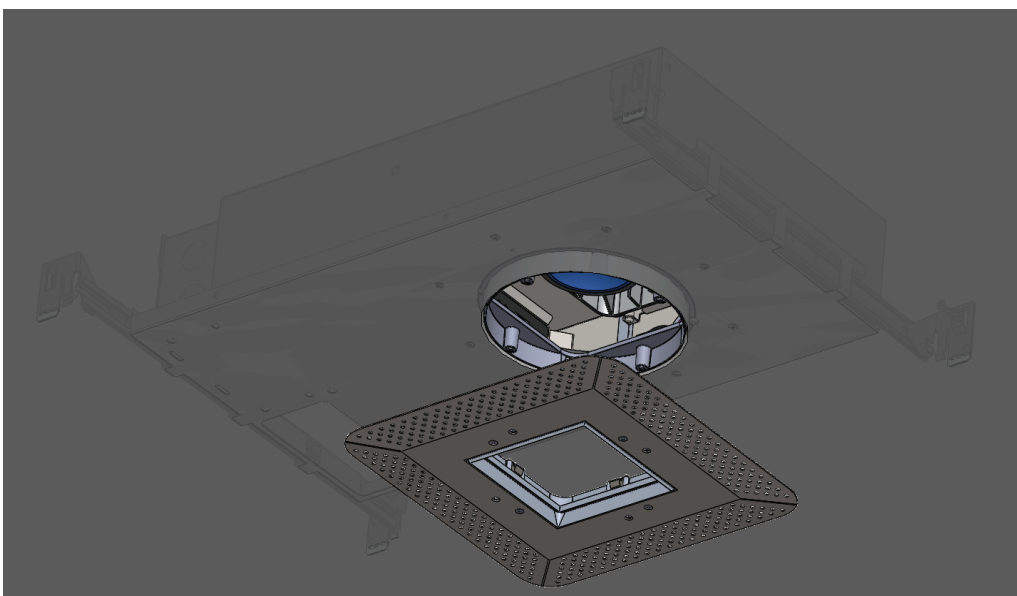


fig. 9

Part 5: Apply Joint Compound

1. Do a skim coat up to the aperture rim using a joint compound. (For mud-in versions, cover the flange but not the retainer.) For best results, use a full ceiling float. (see fig. 10)

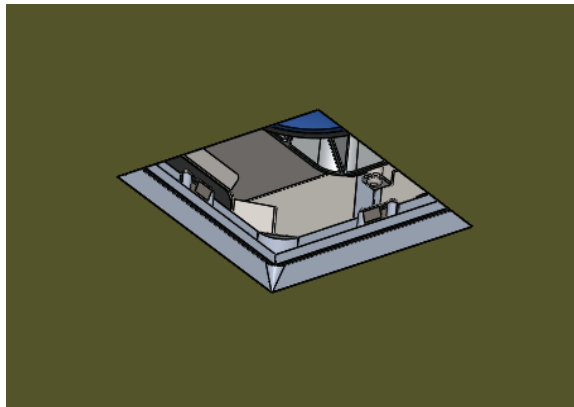


fig. 10

2. Sand and finish the final surface before removing the aperture plug. Clean the internal surfaces of the trim retainer with a clean rag and isopropyl alcohol.

Part 6: Apply Trim

Mud-in and flanged downlights have different processes for applying their trims. Please read only the appropriate section below.

1. Applying trim to **mud-in downlight**
 - a. Press the flangeless trim into the trim retainer. (see fig. 11)

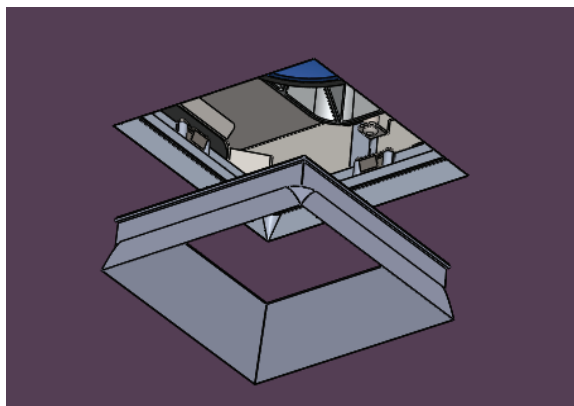


fig. 11

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INSTALLATION

2. Applying trim to flanged downlight

- a. If your ceiling's substrate is thicker than $\frac{5}{8}$ " - 1" (16.129 - 25.4 mm), adjust the springs on either side of your trim: a) Using a #1 screwdriver, loosen the screw holding the spring in place; b) raise the spring as high (as far from the bottom of the trim) as it will go; c) re-tighten the screw. (see fig. 12)

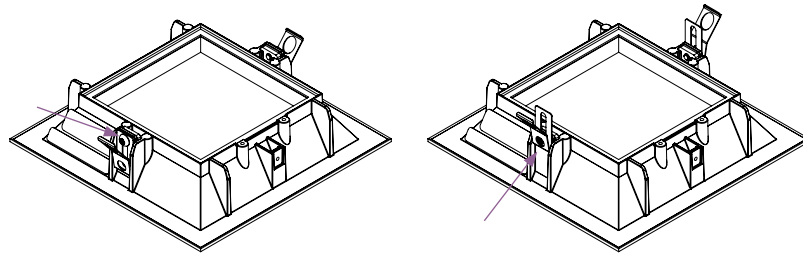


fig. 12

3. Compress the springs and push into the downlight aperture until the trim is flush to the ceiling. Ensure that the springs are properly compressed and are going into the collar, not around the collar. (see fig. 13)
4. Snap the trim into the collar.

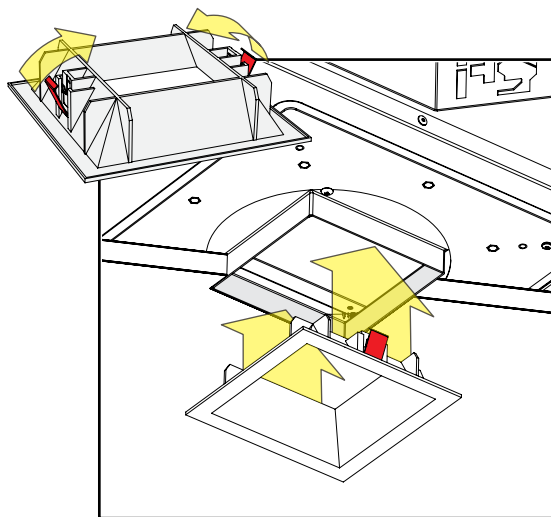


fig. 13

Additional Operations

1. Re-Aiming the Optic

- a. Remove the trim by pulling the trim directly down from the housing.
- b. Unlock the emitter chassis: reach into the D3's housing and unlock tilt lock and rotation lock levers (both colored red). (see fig. 14)
- c. Use the degree indicators to determine degree of rotation (square trim only) and tilt. (see fig. 15)

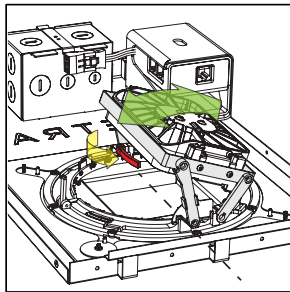


fig. 14

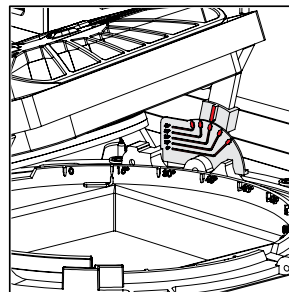
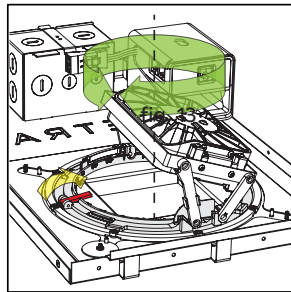
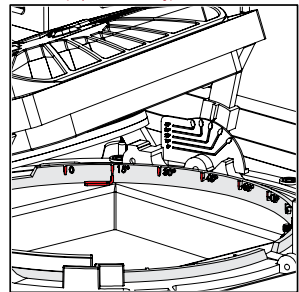


fig. 15



2. Adjusting Optic depth

- a. Remove the trim by pulling the trim directly down from the housing.
- b. To set optic at the deep regress position push optic directly up. Light engine will magnetically lock into place (see fig. 16)
- c. To set optic at the low regress position pull optic directly down. Light engine will magnetically lock into place. (see fig. 17)

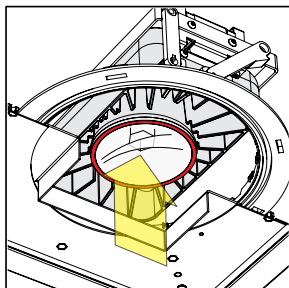


fig. 16

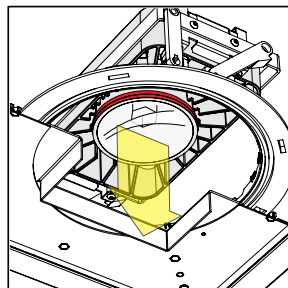


fig. 17

ADDITIONAL OPERATIONS

3. Replacing the Optic

- Remove the trim by pulling the trim directly down from the housing.
- Ensure that the emitter chassis is locked.
- Grab optic and twist counterclockwise to unlock. Pull toward you to remove.
- Install replacement optic, twisting clockwise to lock. (see fig. 18)

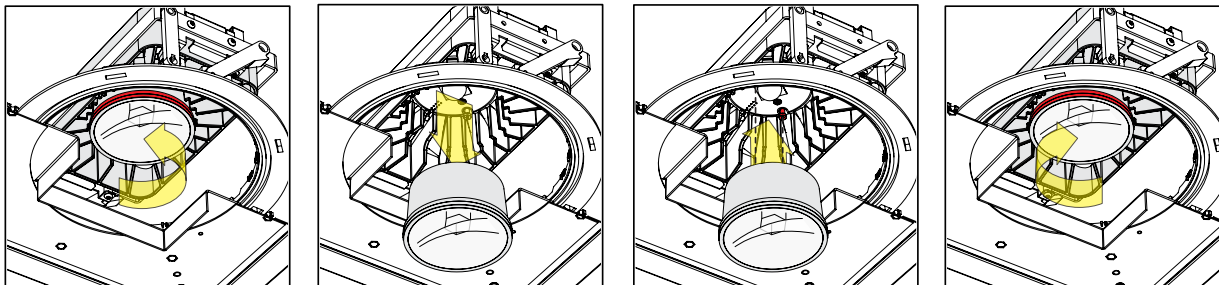
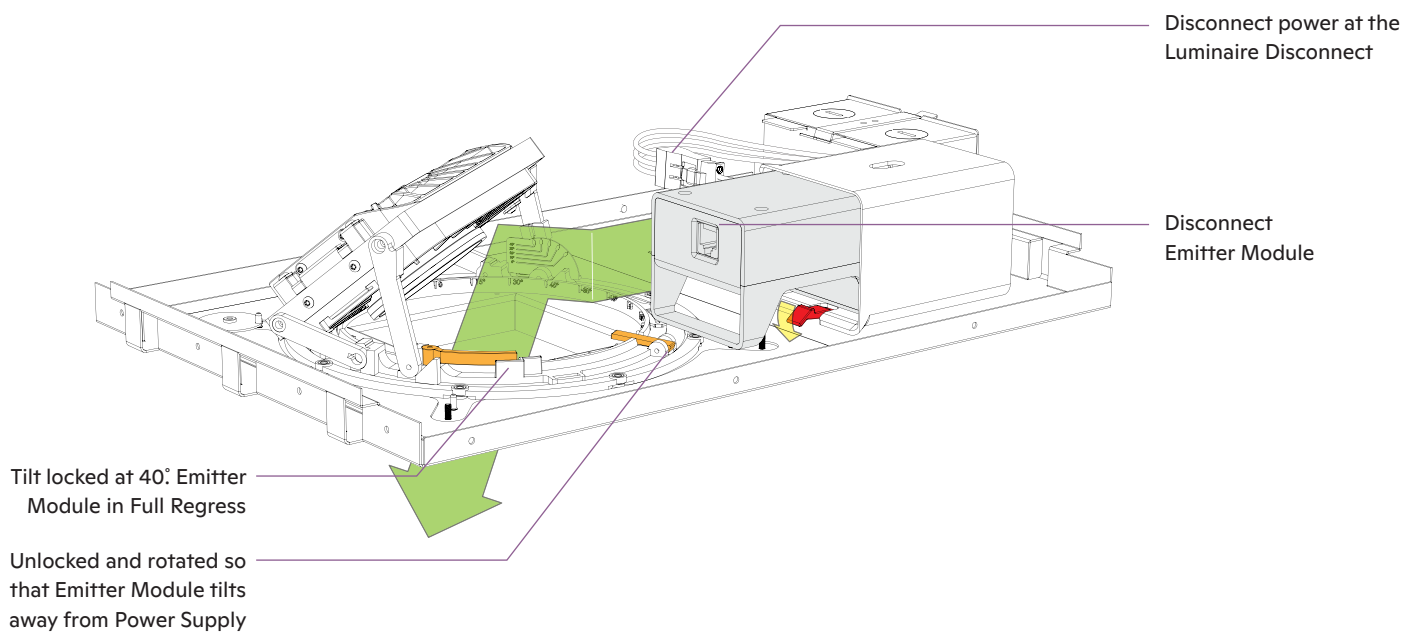


fig. 18

4. Replacing the POWER SUPPLY

- Remove the trim by pulling the trim directly down from the housing.
- Tilt the Light Engine to 40°'s tilt and rotate to allow access to the power supply.
- Unhook the emitter cable from the RJ45 jack on the power supply.
- Pull power supply straight out from the docking station while depressing docking station latch.
- Disconnect power supply quick connect (see fig. 19).



Troubleshooting

The D3 uses built-in tests to check wiring and wireless connectivity. These tests run each time the D3 turns on, and may take several minutes.

Note: The D3 will NOT run these tests while provisioned to a Design Studio installation. If the D3 find a problem, it will let you know by emitting a corresponding color or, if no emitter is connected, by flashing the indicator lights on its power supply.

DIAGNOSTIC COLORS (REQUIRES EMITTER)

The D3 will emit a color to tell you the type of problem.

Color	Condition	Correction
Red	Invalid input voltage on the power line	Ensure that input voltage matches the expected voltage for the D3's model.
Magenta	Poor wireless connectivity	Ensure that the D3 is not in a metal enclosure and that there are no significant obstructions between the D3 and other Ketra devices. Note: In some circumstances, magenta is expected. See the note below the table.
Yellow	Fair wireless connectivity	Ensure that the D3 is not in a metal enclosure and that there are no significant obstructions between the D3 and other Ketra devices.

Note: Magenta can indicate success or failure. It indicates success if there are no other powered-on Ketra devices within 50 ft (15.24 m); otherwise, it indicates a problem.

Warranty & Tech Support

Limited warranty terms can be found at:

www.ketra.com/warranty

For questions and technical support please contact:

(844) 588-6445

ketrasupport@lutron.com



6231 E. Stassney Ln.
Bldg. 13, Suite 400
Austin, TX 78744

ketra.com
512.872.4349