D3

Installation Guide

Models

HW-D3-HOUSING  CM-D3-HOUSING-X
CM-D3-HOUSING  HW-D3-HOUSING-XN
HW-D3-HOUSING-X  CM-D3-HOUSING-XN
WARNING

Risk of electric shock. Use in dry locations only.

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

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1) this device may not cause harmful interference, and
2) this device must accept any interference received, including interference that may cause undesired operation.

Maintain at least 6 ft (1.8 m) of spacing between any KetraNet Mesh product and Wi-Fi routers and access points.

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 device contains license-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada’s license-exempt RSS(s). Operation is subject to the following two conditions:

- This device may not cause interference.
- This device must accept any interference, including interference that may cause undesired operation of the device.
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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

Housing with Emitter & Optic
(Models as specified)

(2) Butterfly Brackets

(2) Nailer Bars

Trim (Model as specified)

Electrical Specifications

<table>
<thead>
<tr>
<th>Wattage</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>18 W</td>
<td>120 V~ 60 Hz 18 W 150 mA; 220-277 V~ 50/60 Hz 18 W 65 mA - 82 mA</td>
</tr>
<tr>
<td>13 W</td>
<td>120 V~ 60 Hz 13 W 109 mA; 220-277 V~ 50/60 Hz 13 W 47 mA - 60 mA</td>
</tr>
<tr>
<td>9 W</td>
<td>120 V~ 60 Hz 9 W 75 mA; 220-277 V~ 50/60 Hz 9 W 33 mA - 41 mA</td>
</tr>
</tbody>
</table>
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
Option 1
MOUNTING WITH NAILER BARS

1. Attach nailer bars
   a. If ceiling thickness is 0.75 in (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 a-c for the clasps on the other end of the housing.

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 0.0625 in (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).
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. Carefully remove the optic by turning counter-clockwise and pulling.

   **Note:** Demonstrate caution when removing wall wash optic due to possible damage.

   **Note:** If you remove the optic, be careful not to touch the exposed silicone dome on the 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.

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*continued on next page*
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 a-c for the second butterfly bracket.

3. Restore the original emitter module 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:** 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*
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-channel (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 (for flanged housing only):** After mounting, ensure that the D3’s collar is flush or sub-flush to the ceiling plane and does not protrude.

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

![fig. 8: Collar](image)

5. **Optional:** If using a square aperture with a flange, realign the collar parallel to the wall

a. Loosen the collar’s two outer screws, freeing the collar for rotation.

b. Realign the collar using its v-shaped notches and an alignment string or laser.

c. Re-tighten the screws to lock the collar’s new position.
Part 2: Wire the Fixture

1. Run power to junction box
   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) no. 12 AWG (4 mm²) through branch circuit conductors suitable for 165 °F (75 °C) permitted in the box.
   c. Run the building’s power line wires* into the junction box.

2. Splice the wires
   a. Using the provided connectors, 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 the 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 determine whether installation was successful:
      • If the light stays at 3000 K, installation was successful. Continue to step d.
      • 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 (15.2 m); otherwise, it indicates a problem.
      To troubleshoot problems, see Diagnostic Colors, page 18.
   c. After verifying a successful installation, remove power and continue to Part Three.

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* 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.
Part 3: Installing Drywall

1. Ensure that the aperture is plugged with the cardboard insert to protect the optic.


<table>
<thead>
<tr>
<th>Type</th>
<th>Hole shape and size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flangeless mud-In</td>
<td>Circle with 5.5 in (139.7 mm) diameter</td>
</tr>
<tr>
<td>Flanged with square aperture</td>
<td>Square with 4 in (101.6 mm) length/width</td>
</tr>
<tr>
<td>Flanged with round aperture</td>
<td>Circle with 4 in (101.6 mm) diameter</td>
</tr>
<tr>
<td>Flangeless millwork with square aperture</td>
<td>Square with 4 in (101.6 mm) length/width (tolerance: +0.25, -0.00) Rounds corners with a radius of 0.12 in (3.125 mm)</td>
</tr>
<tr>
<td>Flangeless millwork with round aperture</td>
<td>Circle with 4 in (101.6 mm) diameter (tolerance: +0.25, -0.00)</td>
</tr>
</tbody>
</table>

3. Align the hole with the D3’s aperture and install the drywall.

Part 4a: Apply Flangeless Mud-In Trim Retainer

Note: Skip this section if you have a flanged downlight. Proceed to Part 4b for flangeless millwork trim retainer installation.

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 0.625 in (15.875 mm) to 1.125 in (28.575 mm), use the blue coded short set; for ceiling thickness in range 0.875 in (22.225 mm) to 1.5 in (38.1 mm), use the red coded long set.

Note: The retainer assembly should be flush with the drywall.
Part 4b: Flangeless Millwork Trim Retainer Installation (Wood/Stone Ceilings)

1. Install both height adjusters on opposite sides of the trim retainer using a 0.05 in (1.3 mm) hex head Allen key and the M2 flat head screws provided with the assembly.

2. Hold the height adjuster inside the housing to determine the length needed. If the slots on the strap do not line up with the holes in the housing (see "incorrect" image below), remove the height adjuster from the trim retainer, vertically rotate the adjuster 180° (see "correct" image below), re-attach the adjuster to the trim retainer and ensure that the holes are aligned.

3. After determining the appropriate length needed on the height adjuster, break the unwanted portion of the strap while still retaining a barrier for the current screw slot. Ensure that the height adjuster is broken at a location that does not interfere with the screw slot. If the adjuster is broken too close to the screw slot, discard and replace with the spare adjuster.

   CAUTION: Cut Hazard. Broken edges may be sharp. Handle with care to avoid cuts or abrasions.

4. Screw in the height adjuster. Use a 0.05 in (1.3 mm) hex head Allen key for the trim retainer screw. Use a 5/64 in (2 mm) Allen key for the housing screw.

5. Review the installation and ensure that the retainer is firmly installed before proceeding.

6. Continue to Part 6 of the install guide.
Part 5: Apply Joint Compound

Note: Skip this section if you have a flangeless millwork installation.

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

![fig. 10](image)

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

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

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

![fig. 11](image)

continued on next page
2. Applying trim to flanged downlight
   If your ceiling’s substrate is thicker than 0.625–1 in (15.875–25.4 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](image)

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](image)
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).

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).
3. Replacing the optic
   a. Remove the trim by pulling the trim directly down from the housing.
   b. Ensure that the emitter chassis is locked.
   c. Grab optic and twist counterclockwise to unlock. Pull toward you to remove.
   d. Install replacement optic, twisting clockwise to lock (see fig. 18).
   **Note:** Demonstrate caution when removing wall wash optic due to possible damage.
   **Note:** If you remove the optic, be careful not to touch the exposed silicone dome on the emitter.

4. Replacing the power supply
   a. Remove the trim by pulling the trim directly down from the housing.
   b. For all configurations except Wall Wash, tilt the Light Engine to 40˚ and rotate to allow access to the power supply. For Wall Wash, use the steps shown in Section 3 (above) to remove the optic and access the power supply.
   c. Unhook the emitter cable from the RJ45 jack on the power supply.
   d. Pull power supply straight out from the docking station while depressing docking station latch.
   e. Disconnect power supply quick connect (see fig. 19).
Troubleshooting

For KetraNet jobs, 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.

<table>
<thead>
<tr>
<th>Color</th>
<th>Condition</th>
<th>Correction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red</td>
<td>Invalid input voltage on the power line</td>
<td>Ensure that input voltage matches the expected voltage for the D3’s model.</td>
</tr>
<tr>
<td>Magenta</td>
<td>Poor wireless connectivity</td>
<td>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.</td>
</tr>
<tr>
<td>Yellow</td>
<td>Fair wireless connectivity</td>
<td>Ensure that the D3 is not in a metal enclosure and that there are no significant obstructions between the D3 and other Ketra devices.</td>
</tr>
</tbody>
</table>

**Note:** Magenta can indicate success or failure. It indicates success if there are no other powered-on Ketra devices within 50 ft (15.2 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

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