



L4R

RECESSED LINEAR

Installation Guide



Model

L4R-BT - Ketra L4R Recessed Linear

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.



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.

- 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 licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-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.

Contents

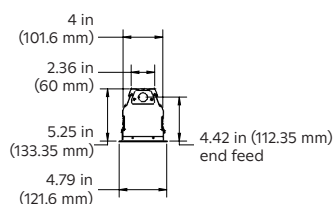
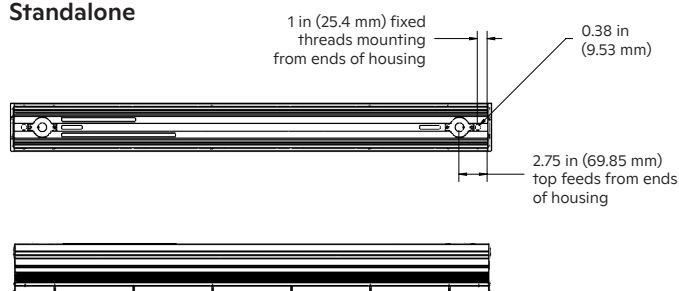
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Product Overview

Dimension Drawings

FLANGED, T-GRID HOUSING

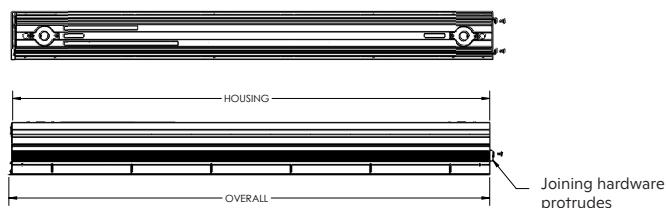
Standalone



Variant	Housing		Overall	
	IN	MM	IN	MM
2ft Nom	23.00	584.20	23.79	604.20
4ft Nom	47.00	1193.80	47.79	1213.80
6ft Nom	71.00	1803.40	71.79	1823.47
8ft Nom	95.00	2413.00	95.79	2433.00
10ft Nom	119.00	3022.60	119.79	3042.67
12ft Nom	143.00	3632.20	143.79	3652.20

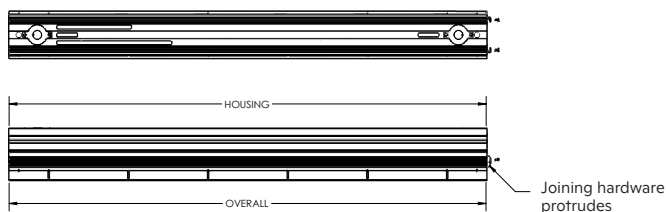
Continuous Runs

Starter



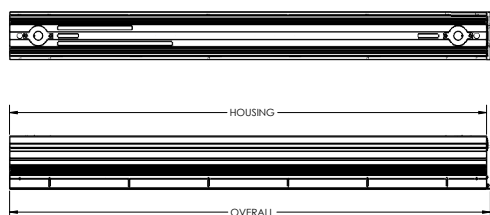
Variant	Housing		Overall	
	IN	MM	IN	MM
2ft Nom	23.00	584.20	23.39	594.11
3ft Nom	36.00	914.40	36.39	924.31
4ft Nom	47.00	1193.80	47.39	1203.71
6ft Nom	71.00	1803.40	71.39	1813.31
8ft Nom	95.00	2413.00	95.39	2422.91
10ft Nom	119.00	3022.60	119.39	3032.51
12ft Nom	143.00	3632.20	143.39	3642.11

Joiner



Variant	Housing		Overall	
	IN	MM	IN	MM
2ft Nom	24.00	609.60	24.00	609.60
3ft Nom	36.00	914.40	36.00	914.40
4ft Nom	48.00	1219.20	48.00	1219.20
6ft Nom	72.00	1828.80	72.00	1828.80
8ft Nom	96.00	2438.40	96.00	2438.40
10ft Nom	120.00	3048.00	120.00	3048.00
12ft Nom	144.00	3657.60	144.00	3657.60

Ender



Variant	Housing		Overall	
	IN	MM	IN	MM
2ft Nom	24.00	609.60	24.39	619.51
3ft Nom	36.00	914.40	36.39	924.31
4ft Nom	48.00	1219.20	48.39	1229.11
6ft Nom	72.00	1828.80	72.39	1838.71
8ft Nom	96.00	2438.40	96.39	2448.31
10ft Nom	120.00	3048.00	120.39	3057.91
12ft Nom	144.00	3657.60	144.39	3667.51

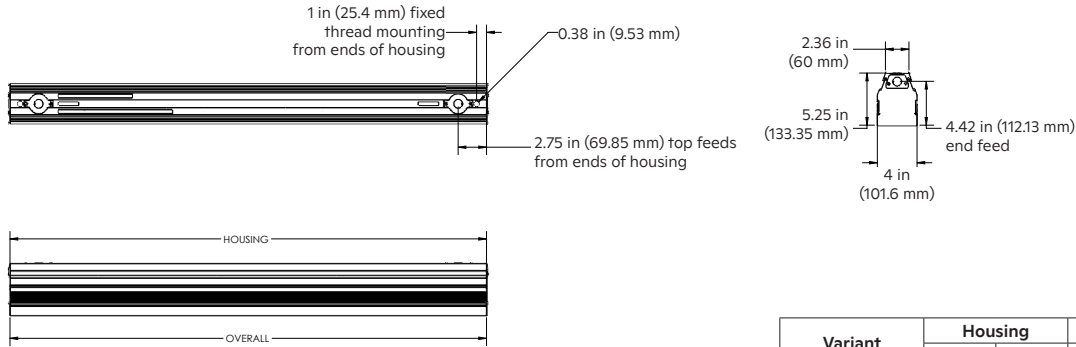
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PRODUCT OVERVIEW

FLANGELESS HOUSING

Standalone

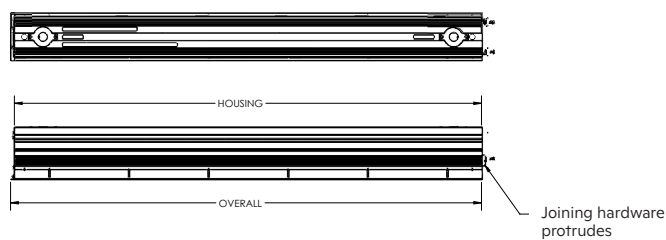
Starter



Variant	Housing		Overall	
	IN	MM	IN	MM
2ft Nom	24.00	609.60	24.42	620.27
3ft Nom	36.00	914.40	36.42	925.07
4ft Nom	48.00	1219.20	48.42	1229.87
6ft Nom	72.00	1828.80	72.42	1839.47
8ft Nom	96.00	2438.40	72.42	2449.07
10ft Nom	120.00	3048.00	96.42	3058.67
12ft Nom	144.00	3657.60	144.42	3668.27

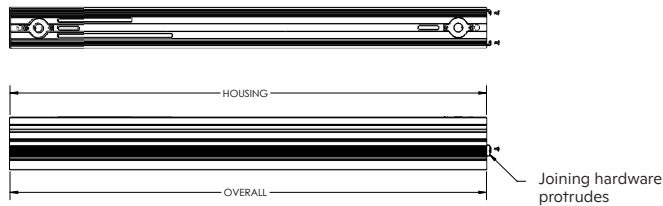
Continuous Runs

Starter



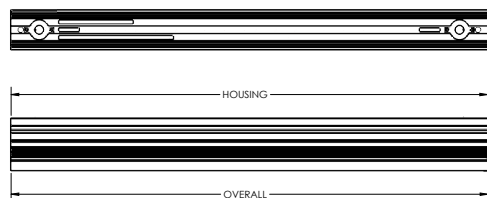
Variant	Housing		Overall	
	IN	MM	IN	MM
2ft Nom	24.00	609.60	24.21	614.93
3ft Nom	36.00	914.40	36.21	919.73
4ft Nom	48.00	1219.20	48.21	1224.53
6ft Nom	72.00	1828.80	72.21	1846.83
8ft Nom	96.00	2438.40	96.21	2443.73
10ft Nom	120.00	3048.00	120.21	3053.33
12ft Nom	144.00	3657.60	144.21	3662.93

Joiner



Variant	Housing		Overall	
	IN	MM	IN	MM
2ft Nom	24.00	609.60	24.00	609.60
3ft Nom	36.00	914.40	36.00	914.40
4ft Nom	48.00	1219.20	48.00	1219.20
6ft Nom	72.00	1828.80	72.00	1828.80
8ft Nom	96.00	2438.40	96.00	2438.40
10ft Nom	120.00	3048.00	120.00	3048.00
12ft Nom	144.00	3657.60	144.00	3657.60

Ender



Variant	Housing		Overall	
	IN	MM	IN	MM
2ft Nom	24.00	609.60	24.21	614.93
3ft Nom	36.00	914.40	36.21	919.73
4ft Nom	48.00	1219.20	48.21	1224.53
6ft Nom	72.00	1828.80	72.21	1846.83
8ft Nom	96.00	2438.40	96.21	2443.73
10ft Nom	120.00	3048.00	120.21	3053.33
12ft Nom	144.00	3657.60	144.21	3662.93

Pre-Installation

Important Note: N3 Satellite

Warning: Turn off power to the N3 Satellite before any installation.

- N3 Satellite is required: An N3 Satellite is required for use of the L4R Linear Recessed. Never connect the pendant directly to building power.
- LEAD-OUT from N3: For an N3 Satellite mounted in the plenum, use 4-conductor building wire, gauge 16 or lower, as a LEAD-OUT cable.
- Maximum run length: One N3 can power no more than a maximum 100 feet of total run length, including a total fixture length not to exceed 40 ft (12.19 m). If a fixture causes the total run length to exceed 100 ft (30.48 m) or the fixture run length to exceed 40 ft (12.19 m), it will require a power drop from a new N3.

For N3 installation instructions, refer to our N3 Installation Guide.



fig. 1

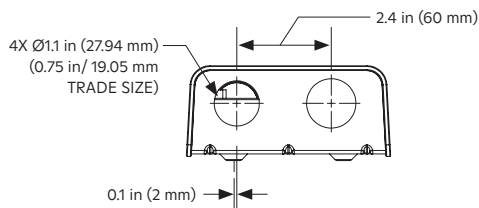


fig. 2

N3 wiring out to L3I leader cable

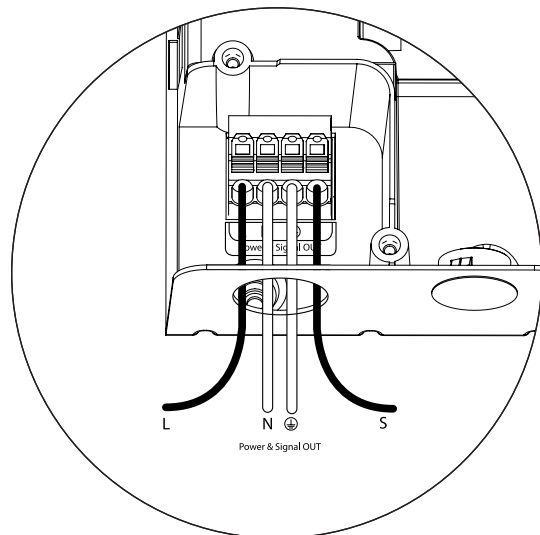
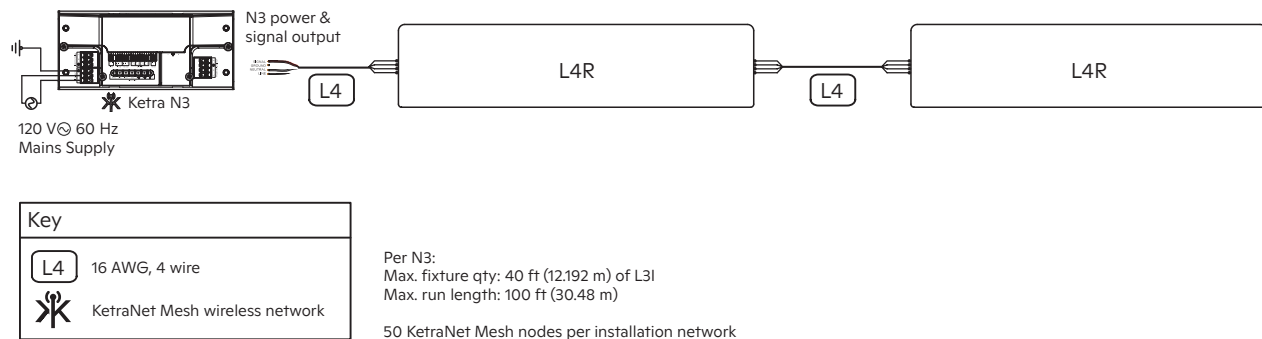


fig. 3

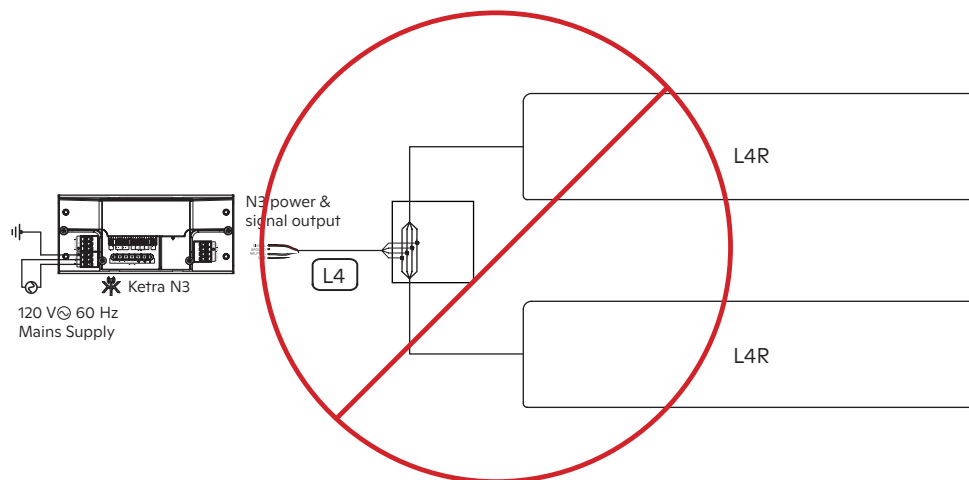
Warning: Signal wire (red) should not be connected to line voltage (black).
The signal wire transmits data between the N3 and the fixture(s).

Important Note: Wiring

Note: The L4R is required to be wired in series. As such, input/ output orientation is critical. Power in and out sides are clearly labeled on the ends of the luminaire.



Not allowed: Home run wiring not supported



Installation

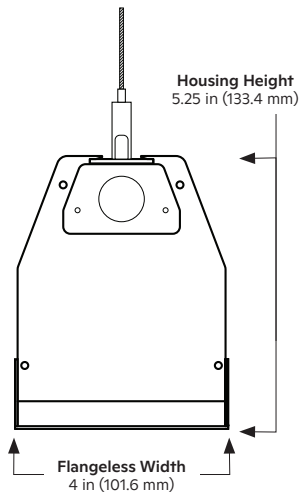
Warning: Turn off power to the N3 Satellite before any installation.

STEP 1:

Mount standalone/starter fixture

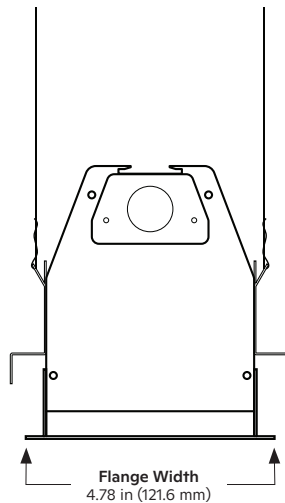
Choose one of the mounting methods below.

Option 1
Aircraft cable
mounting bracket



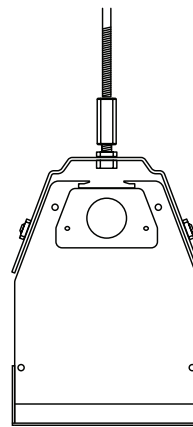
see page 9

Option 2
Adjustable t-grid
mounting brackets



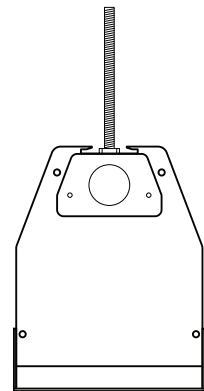
see page 10

Option 3
External mounting
bracket



see page 11

Option 4
Thread-mount stud



see page 12

INSTALLATION

Option 1

Aircraft Cable Mounting Bracket

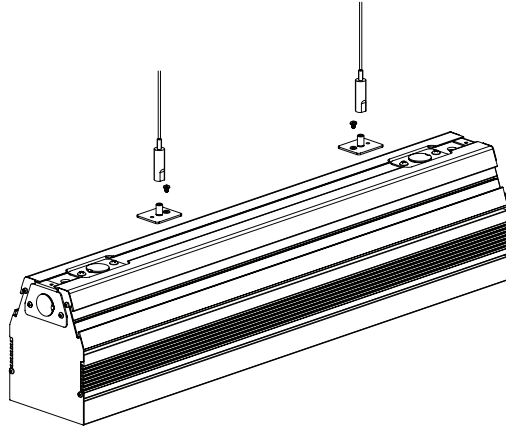


fig. 4

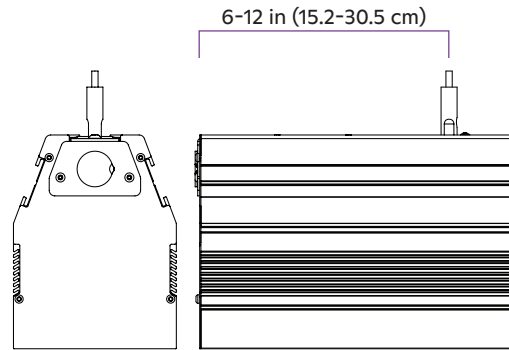


fig. 5

1. Prepare supports at ceiling level:
 - a. Determine support locations to structure based on fixture lengths, and install the supports. For spacing, see fig. 5.
Note: Structure support (by others) should have accommodations for ¼-20 cable coupler used with L4R suspension mount.
 - b. Feed aircraft cables through ¼-20 cable couplers.
 - c. Attach the cable couplers to the support. Ensure the couplers are tightened properly, and that aircraft cables are hanging at intended spacings.
2. Prepare mounting hardware on fixture:
 - a. Position two t-studs in the sliding channel on top of the fixture. The two studs should be within 6 to 12 in (15.2-30.5 cm) from each end of the fixture. For spacing, see fig. 5.
 - b. Tighten the M3 Phillips screws in the t-studs to fix them in place.
Note: Hand-tighten until the t-studs are fixed; do not over-tighten.
 - c. For each t-stud, thread a provided cable gripper onto the stud.
3. Mount the fixture with aircraft cables:
 - a. Feed a cable into the top of each gripper. The gripper will lock automatically.
Note: Make sure at least a quarter inch of steel cable is poking out of the gripper's side exit.
 - b. Level the fixture and confirm the aircraft cable is the proper length. Adjust the position of a fixture by unlocking one of the grippers. To unlock a gripper, compress the spring on top of it.
Note: Be sure the fixture is secured/supported when unlocking a gripper.
 - c. Clip the excess cable, and crimp for safety and to prevent fraying.

INSTALLATION

Option 2

Adjustable T-Grid Mounting Brackets

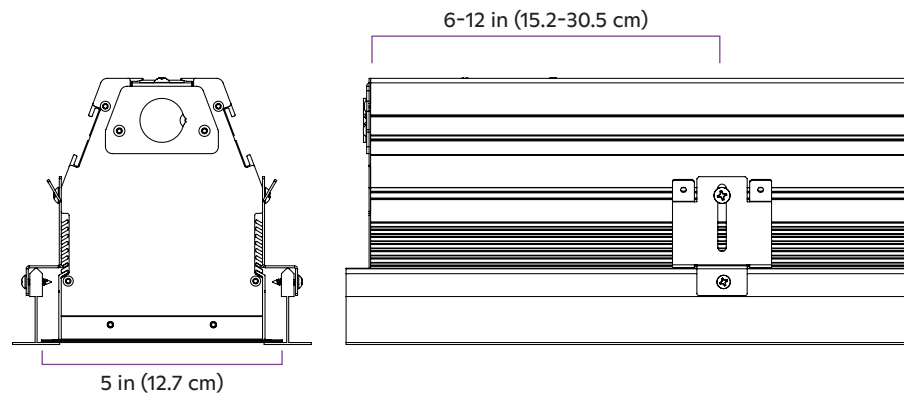


fig. 6

1. Place the fixture above the ceiling. Use cross-T's to form a frame for the L4R. T-bar main runners should be spaced 5 in (12.7 cm) apart on center for a flanged fixture. Next lay the fixture into the frame.
2. Apply the four provided t-bar brackets to the fixture. For each bracket:
 - a. Position the bracket on the fixture within 6-12 in (15.2-30.5 cm) of a corner. For spacing, see fig. 6. Hook the bracket into the fixture's outer ribs, using the lowest rib possible such that the bracket rests on the t-bars.
 - b. Fix the bracket in place. Use a provided Phillips No. 8 sheet metal screw.
 - c. Fix the bracket to the t-bar. Use a provided Phillips No. 6 sheet metal screw.
 - d. Use building wire to tie the bracket to the structure.

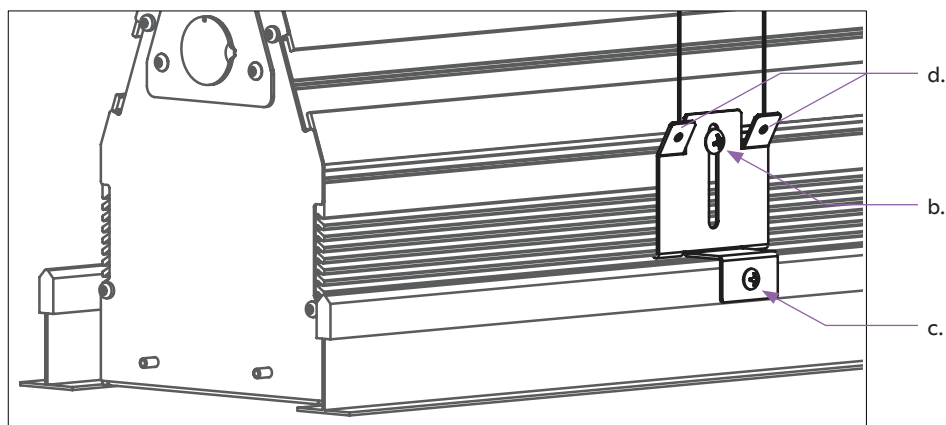


fig. 7

INSTALLATION

Option 3

External Mounting Bracket

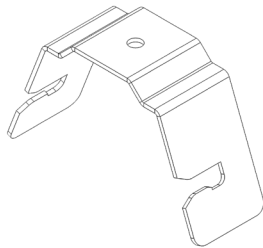


fig. 8

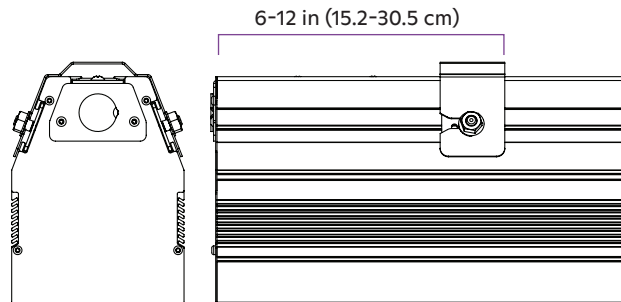


fig. 9

1. Mount the two external mounting brackets to the mounting surface (ceiling or wall). External mounting bracket illustrated in fig. 8.

Notes:

- Spacing: Length of fixture minus 6 to 12 inches on both ends. (Subtract the same number of inches from both ends.) For spacing, see fig. 9.
 - External mounting brackets to be fixed directly to surface via proper hardware (e.g. anchor screws into concrete, lag screws into wood backing, threaded rod to structure with locknuts, etc.) supplied by others.
 - If mounting vertically, ensure that the brackets' keyhole slots face up.
2. On the exterior of the fixture, slide two t-studs into each of the two side channels. Two t-studs for each bracket. T-studs highlighted in fig. 10.
 3. Tighten the M3 Phillips screws in the t-studs ($\frac{1}{4}$ "-20 stud) to fix them in place.

Note: Hand-tighten until the t-studs are fixed; do not over-tighten.

4. Mount the fixture by fitting the t-studs into the keyhole slots on the external mounting brackets.
5. Apply the $\frac{1}{4}$ "-20 nut to each t-stud to lock it to its external mounting bracket.

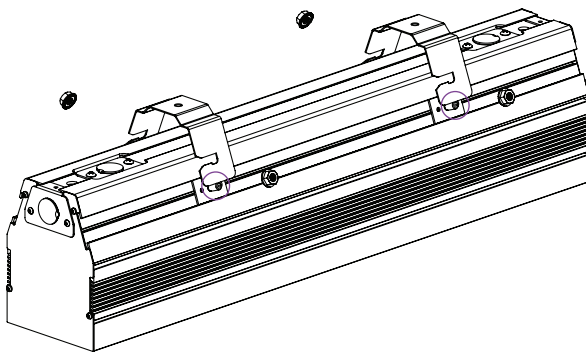


fig. 10

INSTALLATION

Option 4

Thread-Mount Stud

Requires threaded rods in a mounting surface.

Warning: Lens and reflectors are easily damaged! Wear gloves while handling.

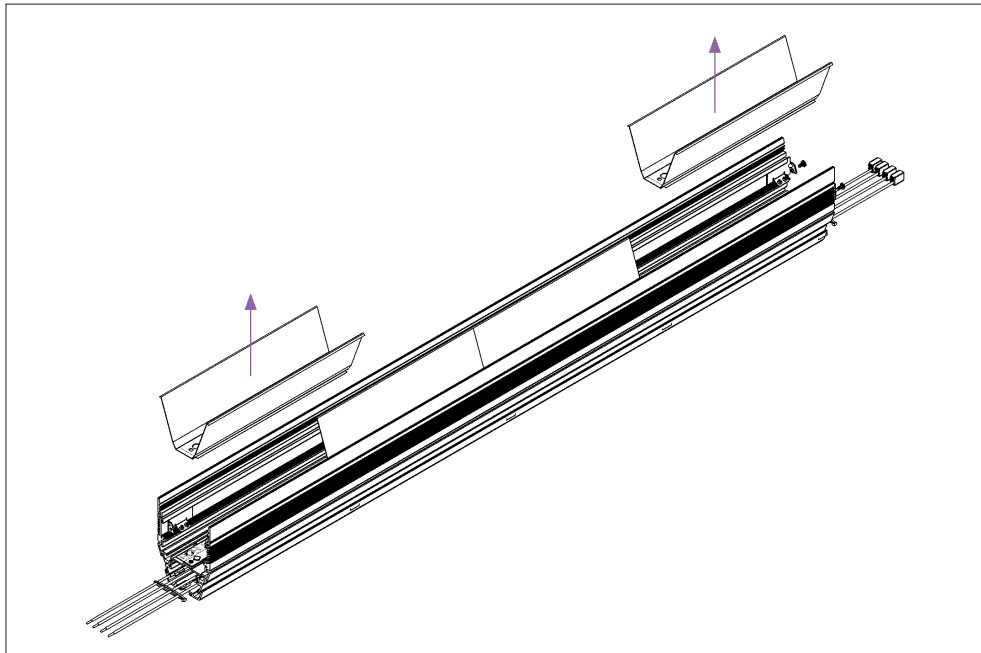


fig. 11

1. Remove the fixture's lens.
2. Remove the fixture's first and last reflectors (see fig. 11). To remove:
 - a. Unscrew the reflector's Phillips M2 screws.
 - b. Detach by applying light pressure at the seam between reflectors. Use a flat tool to access the seam.
 - c. Unhook the reflector and remove. To unhook, apply light pressure to the reflector's outer edges. Then pull to remove.

Warning: Before continuing, ensure that the fixture is receiving no power.

3. Partially remove both of the exposed light engines (see figs. 12 & 13). See instructions below images.

Warning: The light engines are easily damaged.

Note: Do not disconnect the light engine's wiring.

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INSTALLATION

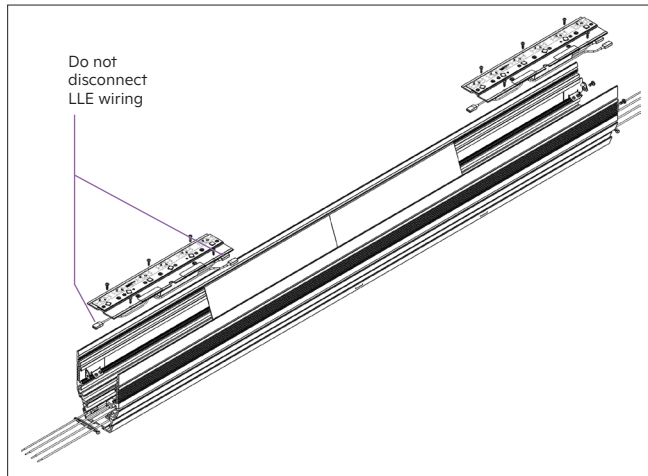


fig. 12

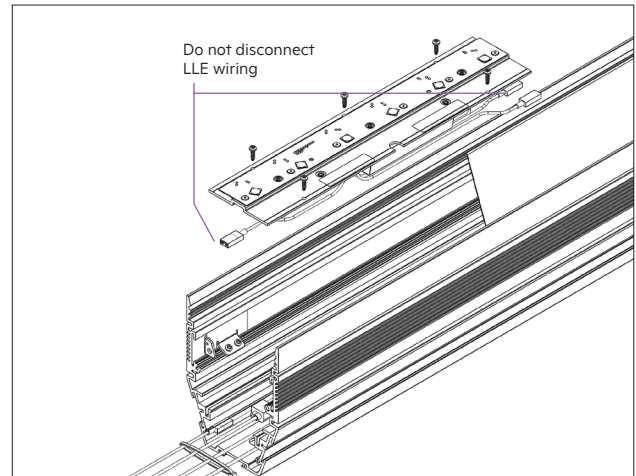


fig. 13

To partially remove a light engine:

- a. Unscrew the light engine's 5 T10 screws. Do not remove guide screw (see fig. 14).
 - b. Gently pull the edges of the light engine until it detaches.
4. Mount the fixture on threaded rods (by others) using the holes below the light engines (see fig. 12). Secure with a washers and locknuts (by others).
 5. Level the fixture as necessary.

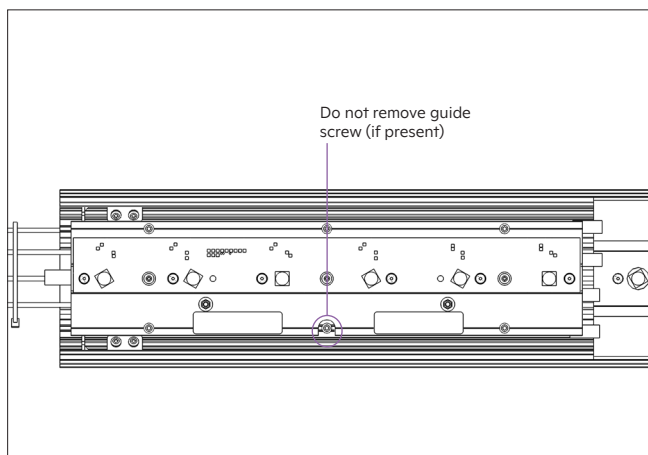


fig. 14

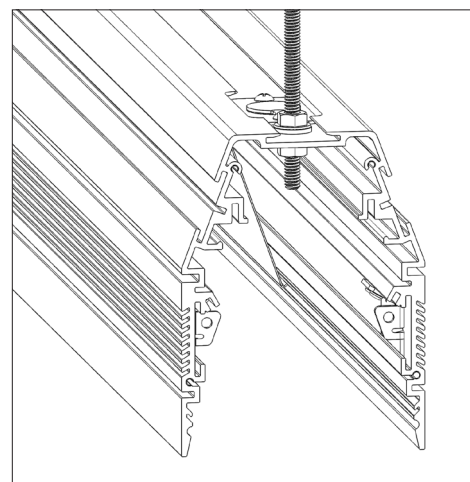


fig. 15

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INSTALLATION

6. Reattach the light engines and reflectors (see fig. 16). To reattach:
 - a. Tuck the light engine's wires back into the compartment. Be careful not to pinch any wires.
 - b. Align the light engine. Use the guide screw to align.
 - c. Reattach the light engine using the T10 screws.
 - d. Push the reflector into the first groove in the housing.
 - e. Align the reflector with the light engine.
 - f. Reattach the reflector using the Phillips M2 screws.

Note: After mounting and wiring all fixtures, be sure to clean the light engines as instructed. Instructions in a later step.

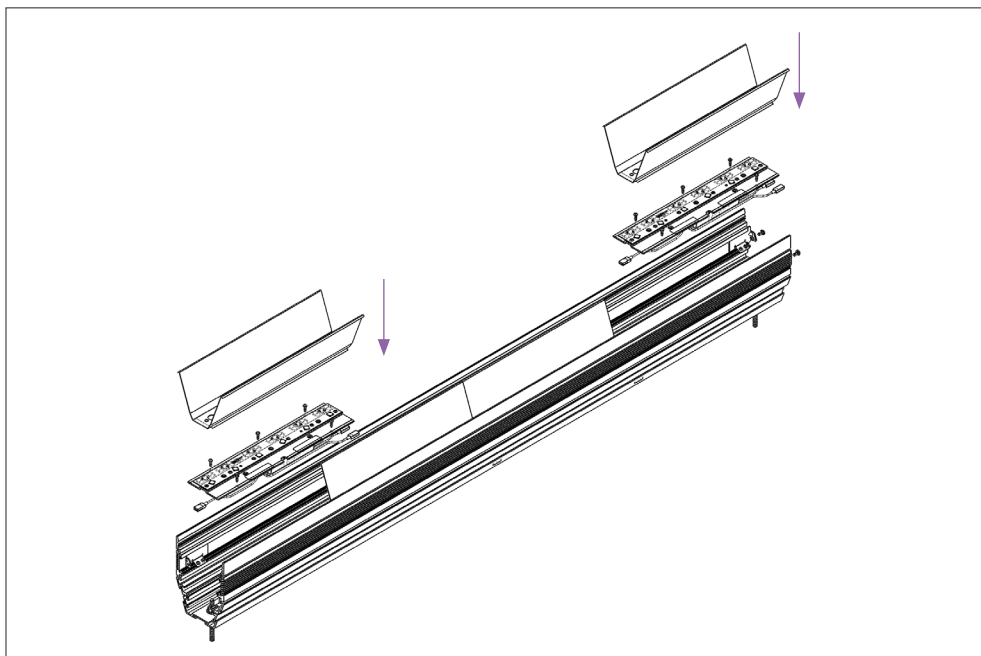


fig. 16

STEP 2:

Mount joiner/ender fixture (continuous run only)

Warning: Turn off power to the N3 Satellite before any installation.

1. Remove the lenses from the new fixture and the previous one.

continued on next page

INSTALLATION

2. Wire the fixtures together.

Note: Skip number 2 and letters a-b if the current joiner/ender requires a power drop. It requires a power drop if it causes the total run length to exceed 100 ft (30.48 m) or the fixture run length to exceed 40 ft (12.19 m).

- a. Make the wiring connections. Pull the two sets of wires out (you will have about 6 in/ 15.24 cm of slack on each) and make the connections, being sure to match colors:

Green - Green

Black - Black

White - White

Red - Red

- b. Tuck the connected wires back into either fixture's compartment.

3. Join the fixtures.

Warning: The reflector is easily damaged. Wear gloves while handling.

- a. Remove the new fixture's first reflector (closest to IN side). (See fig. 17.) Remove the reflector's Phillips M2 screws, then detach apply light pressure to the seam between reflectors using a flat tool. Lastly, unhook the reflector by applying light pressure to its outer edges. Pull to remove.

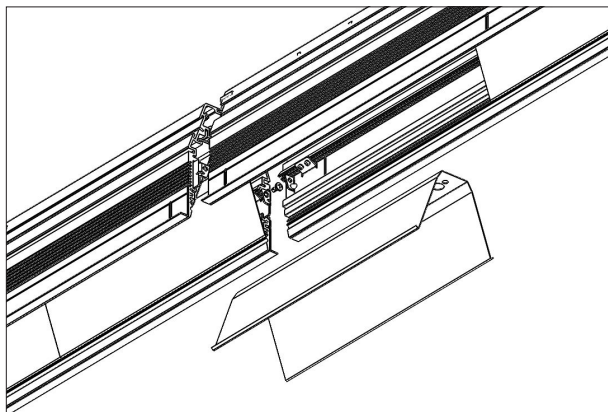


fig. 17

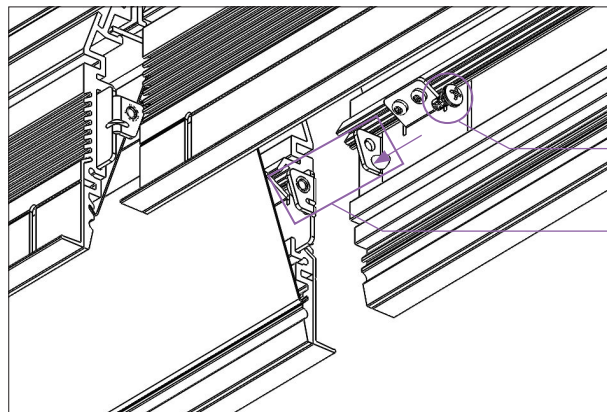


fig. 18

Warning: The exposed light engine is easily damaged. Avoid contacting silicone domes.

- b. Align the two fixtures' joining brackets within the sidewall channels and secure them. To secure the brackets, use the provided Phillips #2 M4 screws. (See fig. 18.)
- c. Replace the reflector, being careful not to scratch the light engine.

4. Mount the joiner/ender.

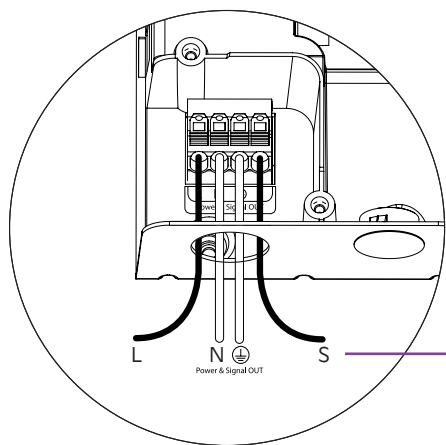
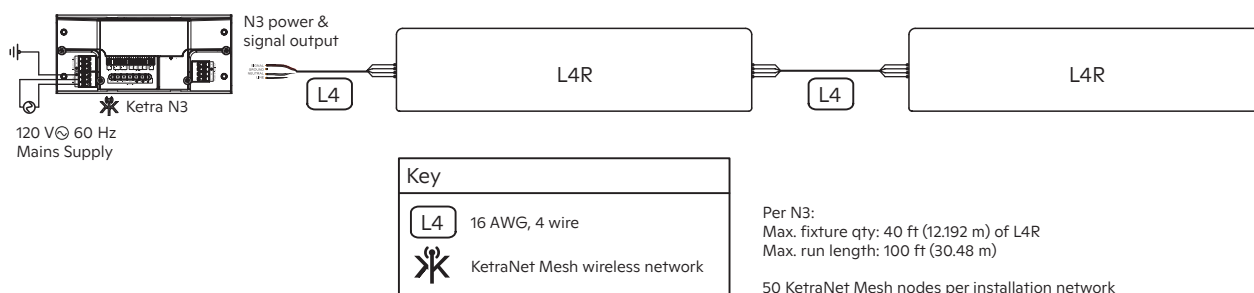
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INSTALLATION

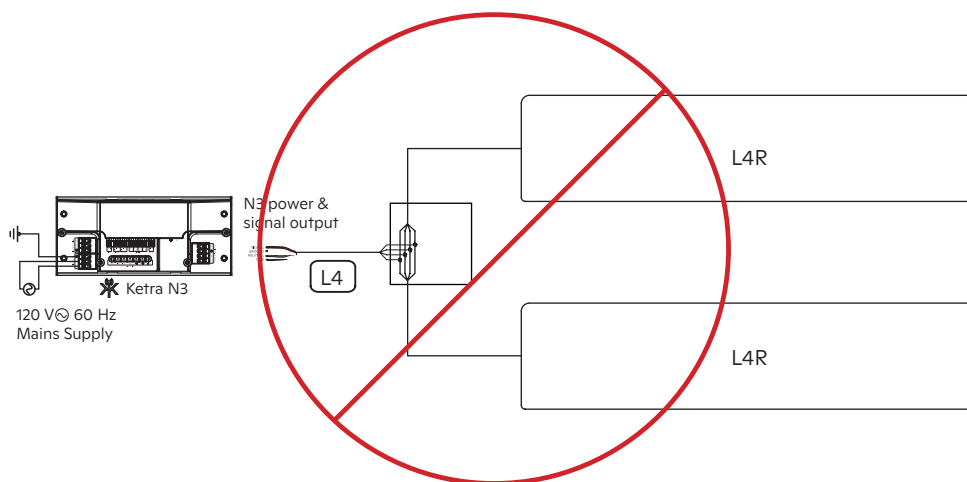
STEP 3:

Mount joiner/ender fixture (continuous run only)

Note: L4R does not support multi-drop or home-run wiring. (See fig. 16.)



Warning: Signal wire (red) should not be connected to line voltage (black). The signal wire transmits data between the N3 and the fixture(s).



INSTALLATION

Wiring Power In

1. At the power source, connect the LEAD-OUT cable. Use 4-conductor building wire, gauge 16 or lower, as a LEAD-OUT cable.

Note: The power source can be an N3 Satellite or another L4R in a series connected to an N3 Satellite. Never connect building power directly to an L4R.

Be sure to connect the appropriate cable conductors to their matching partners:

Black conductor to Line/Hot wire

White conductor to Neutral wire

Green conductor to Ground wire

Red conductor to Signaling wire

Warning: Signal wire (red) should not be connected to mains voltage (black).

Note: Conductor colors are not always as listed. These colors vary depending on your wiring setup. To ensure the correct wiring, consult a professional electrician.

2. Feed the LEAD-OUT cable into a flexible conduit.
3. At the L4R, remove the appropriate conduit plate from the IN side. To remove the plate, unscrew the two M3 T10 screws.
 - Standard IN wiring: Remove the endcap conduit plate (see fig. 19).
 - Power drop in a continuous run: Remove the top conduit plate. (see fig. 20).
4. Remove the plate's knockout.
5. Connect the conduit from the power source to the conduit plate. Use a nut (by others) to secure the conduit to the plate.

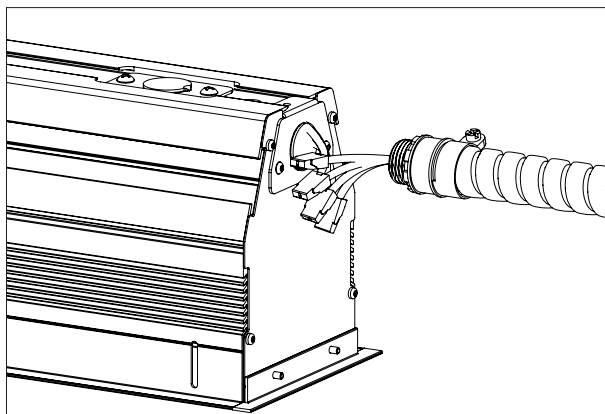


fig. 19

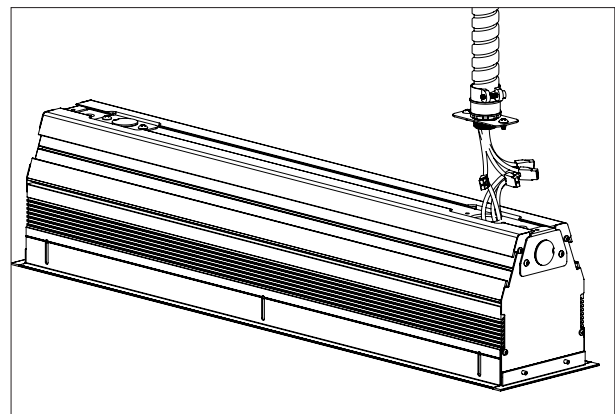


fig. 20

INSTALLATION

6. Make wire-to-wire connections. As before, connect the appropriate cable conductors to their matching partners:

Black conductor to Line/Hot wire

White conductor to Neutral wire

Green conductor to Ground wire

Red conductor to Signaling wire

Warning: Signal wire (red) should not be connected to mains voltage (black).

Note: Conductor colors are not always as listed. These colors vary depending on your wiring setup. To ensure the correct wiring, consult a professional electrician.

7. Reapply the conduit plate.

Wiring Power Out

1. At the L4R, remove the conduit plate from the OUT endcap. To remove, unscrew the two M3 T10 (Torx-10) screws.
2. Remove the plate's knockout.
3. Connect a flexible conduit to the plate.
4. Prepare LEAD-OUT from the L4R. Use 4-conductor building wire, gauge 16 or lower, as a LEAD-OUT cable. Connect the appropriate cable conductors to their matching partners:

Black conductor to Line/Hot wire

White conductor to Neutral wire

Green conductor to Ground wire

Red conductor to Signaling wire

Warning: Signal wire (red) should not be connected to mains voltage (black).

Note: Conductor colors are not always as listed. These colors vary depending on your wiring setup. To ensure the correct wiring, consult a professional electrician.

5. Feed the LEAD-OUT cable into the conduit.
6. Reapply the conduit plate.

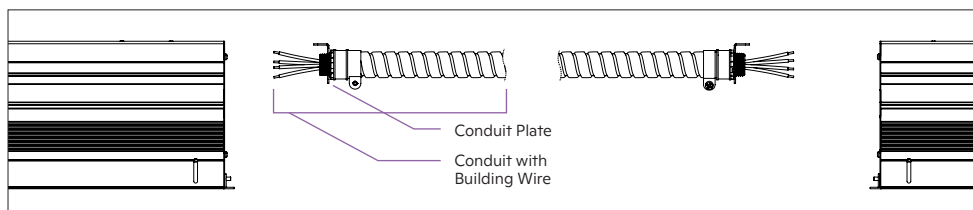


fig. 21

STEP 4:

Finish the installation

1. Clean the light engines on all fixtures. For each fixture, clean the silicone domes in the reflector trough using a lint-free cloth and 90% isopropyl alcohol.
2. Confirm that there are no exposed wires protruding from the fixtures.
3. Confirm that all lenses are applied.
4. Confirm that no fixture has debris resting inside its lens.
5. If necessary, clean the lenses with isopropyl alcohol to remove dust and fingerprints.
6. Restore power to the circuit. The fixture will illuminate at a default white state ready for programming. If the fixture is any other color, please refer to our troubleshooting table below.

Trouble Shooting Table

Color	Condition	Correction
Red	Low input voltage on the power line	Ensure that the input voltage is 120 V or 277 V, + or - 10%
Magenta	Signaling wire connection not detected	Cut power and reconnect the red conductor of the leader cable to the N3's "S" port
Red-Green-Blue Pattern	Line and neutral wiring switched	Cut power, and reverse line and neutral wiring
Red-Green Pattern*	Line and neutral wiring switched	Cut power, and reverse line and neutral wiring
Yellow	Multiple runs of linear product detected	Cut power and disconnect all but one run of L4R. Only one run can be connected to a satellite
Turquoise	More than 40ft of linear product detected	Remove the turquoise linears and reboot the satellite
Green Dark Blue	More than 100ft total run length detected (including cables & fixtures)	Remove excess cabling and/or fixtures, and reboot the satellite

* For product ordered in 2019

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

ketra.com
512.872.4349