

Thank you for purchasing Waveform Lighting's T5HO LED tube light. Please carefully read the installation instructions prior to installation and use.

ALWAYS OBSERVE ELECTRICAL SAFETY PRECAUTIONS. INSTALLATION SHOULD ONLY BE PERFORMED BY QUALIFIED INDIVIDUALS WITH KNOWLEDGE OF FLUORESCENT FIXTURE OPERATION AND LAMP INSTALLATION. IF YOU ARE NOT QUALIFIED OR NOT COMFORTABLE, SEEK A QUALIFIED ELECTRICIAN'S ASSISTANCE.



IMPORTANT: LAMP ENDS AND LAMPS ARE FRAGILE. PRIOR TO INSTALLATION, INSPECT EACH BULB AND CONFIRM THAT IT WAS NOT DAMAGED DURING SHIPMENT OR HANDLING. REMOVE THE PROTECTIVE COVER FROM EACH OF THE LAMP ENDS AND ENSURE THE PINS ARE NOT DAMAGED. DO NOT INSTALL OR USE LAMPS WITH DAMAGE AS THIS CAN POSE A FIRE AND SHOCK RISK. CONTACT US IMMEDIATELY FOR A REPLACEMENT.

Our T5HO LED lamps are designed to work both with existing T5HO ballasts and via direct-wire. This means that our lamps will work with any 4-ft T5HO fluorescent fixture, as long as the correct wiring method is used. The compatible configurations are shown below:

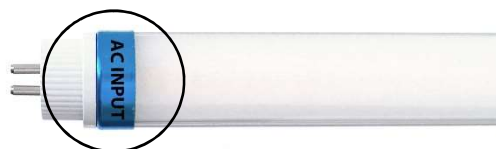
Method	Description	Wiring Diagram	Pros	Cons
With ballast (UL Type A)	Keeps fluorescent ballast in fixture, simply install in place of old fluorescent bulb.		<ul style="list-style-type: none"> • Very quick & easy installation • No electrical rewiring work needed • Fluorescent tubes can still be used in the fixture 	<ul style="list-style-type: none"> • LED lamp operation depends on ballast reliability; ballast failure may require rewiring in future • Lower overall system efficiency due to ballast inefficiencies
Ballast bypass, single ended (UL Type B)	Replaces or bypasses the fluorescent ballast, and directly connects line voltage to just one end of the LED tube.		<ul style="list-style-type: none"> • Higher system efficiency due to elimination of fluorescent ballast • Works with non-shunted tombstones only 	<ul style="list-style-type: none"> • Requires replacement of ballast and additional electrical work • Fluorescent tubes no longer compatible with fixture

WARNING:

- Carefully read the installation instructions and product labels before installing the T8 LED tube light.
- Risk of fire or electric shock. Improper installation can result in electric shock or fire.
- Rated for use in dry or damp locations only. Do not use where directly exposed to water or weather. Not-submergible (not water tight).
- Turn off all power to the fixture before inspection, installation, or removal.
- Do not open or disassemble the LED tube – no user-serviceable parts inside.

Lamp Orientation

- The T5HO lamps are marked on one end with the words "AC INPUT." The other end has no marking.
- For with-ballast (UL Type A) operation, lamp orientation does not matter. You may safely use the lamp in either orientation and disregard the lamp marking.
- For ballast-bypass (UL Type B) operation, line voltage should **ONLY** be connected to the side marked "AC INPUT." Do **NOT** connect line voltage to the side without the marking.

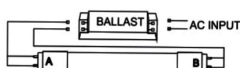


Type A Installation Instructions (With Ballast)

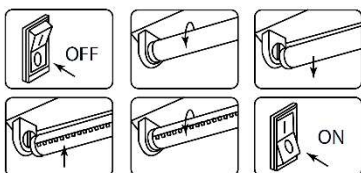
Before installation, we recommend confirming that the ballast used in the fixture is listed in our "compatible ballast list". If not compatible, install the LED tubes according to Type B installation instructions.

The list of compatible ballasts can be accessed at: <https://www.waveformlighting.com/CB4022>

Installation Diagram



Installation Guide



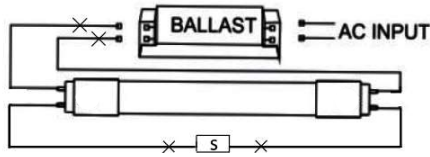
Installation Steps

1. Switch-off power to the fixture.
2. Remove the existing fluorescent lamps from the fixture by rotating 90 degrees and sliding it out.
3. Slide the LED tube light into the lampholders, and rotate the LED tube light 90 degrees until securely mounted.
4. Switch on power to the fixture.

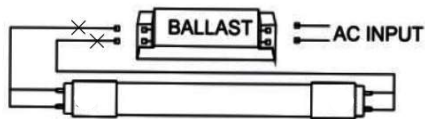
Instructions continued on reverse side

Type B Installation Instructions (Ballast Bypass)

1. Disconnect power to fixture, and ensure that power is OFF using a voltmeter or other approved method to confirm.
2. After confirming that the power to the fixture is disconnected, and remove the fluorescent lamps by rotating the lamps 90 degrees, then gently sliding out of the lampholders.
3. Rewire the fixture to bypass the ballast
 - a. If bypassing a **magnetic ballast with starter**: disconnect the wires between the ballast and inductive starter and lampholders (at points marked X below)



- b. If bypassing an **electronic ballast**: disconnect the wires between the ballast and lampholders (at points marked X below)



4. Connect the lampholder wires directly to a branch circuit, using one of the following configurations. Ensure that the lamps are only connected to the branch circuit through the end marked "AC INPUT." Do NOT connect the unmarked end to the branch circuit.

Single-Ended Direct-Wire	
Single Lamp	<p>CONNECT SIDE MARKED "AC INPUT" ONLY</p>
Multiple Lamps	<p>CONNECT SIDE MARKED "AC INPUT" ONLY</p>

5. Slide the LED tube light into the lampholders, and rotate the LED tube light 90 degrees until securely mounted.
6. Switch on power to the fixture.

WARNING: Do not use fluorescent lamps in fixtures that have been rewired for Type B LED tube installations. We strongly recommend marking the fixture as "Rewired for LED" to avoid inadvertent installation of fluorescent tubes.