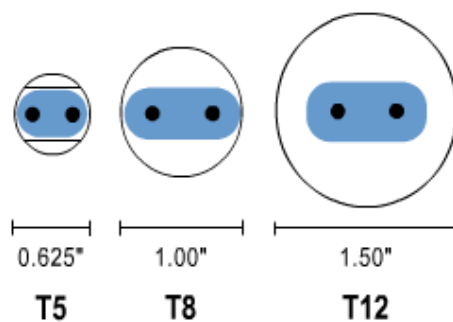


Converting fluorescent light fixtures from T12 to T8 bulbs

What follows is a brief summary of what is involved in converting a 2-bulb fluorescent light fixture using T12 bulbs to T8 bulbs. While LED bulbs are becoming available, their cost is still quite a bit higher than fluorescent bulbs. LED manufacturers have settled on the T8 bulb size but not on a common hook-up schematic. They are very energy efficient but also have issues with LED light directionality and light output for common household applications. The market will, no doubt, soon solve these limitations but, until then, we'll just focus on fluorescent T12 and T8 applications.

Hardly a week goes by that we have to change fluorescent bulbs at a client's home or apartment. Most of the fixtures hold two (2) 48" long bulbs. They are usually found in bathrooms, kitchens, laundry rooms, and large closets where bright lighting calls for a color temperature of at least 6000°K. Fixtures installed in living areas typically emit a soft white light such as generated by 4100°K bulbs.



Older fixtures typically use the T12 (1.5" diameter) bulbs, whereas the current standard is the T8 (1.0" diameter) bulb. While the electrical sockets ("tombstones") of these bulbs are identical, i.e., interchangeable, the bulb types require different ballasts and different schematic hook-ups in order to function properly!

Warning:

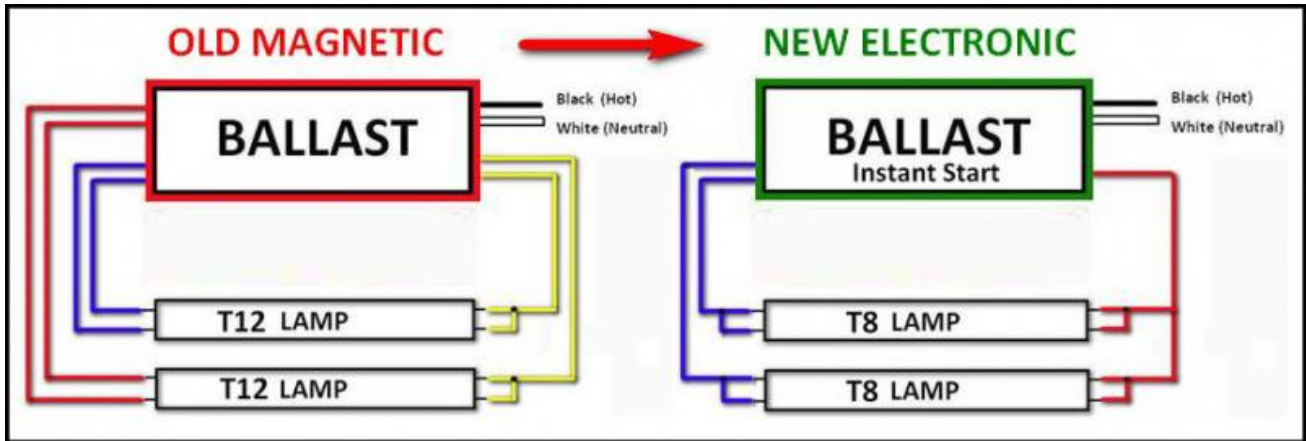
- If you place T12 tubes in a fixture with a T8 ballast, you will [wear out the ballast](#) and have to replace it much sooner than normal.
- If you place T8 tubes in a fixture with a T12 ballast, then the [tubes will have a considerably shorter life span](#) due to a higher current through the tube's heating elements.

Comparison of light output and approximate cost (May 2017) of 2-bulb light fixture. T5 bulbs use a special "tombstone" and would require a special conversion kit to enable their use in a T12 fixture.

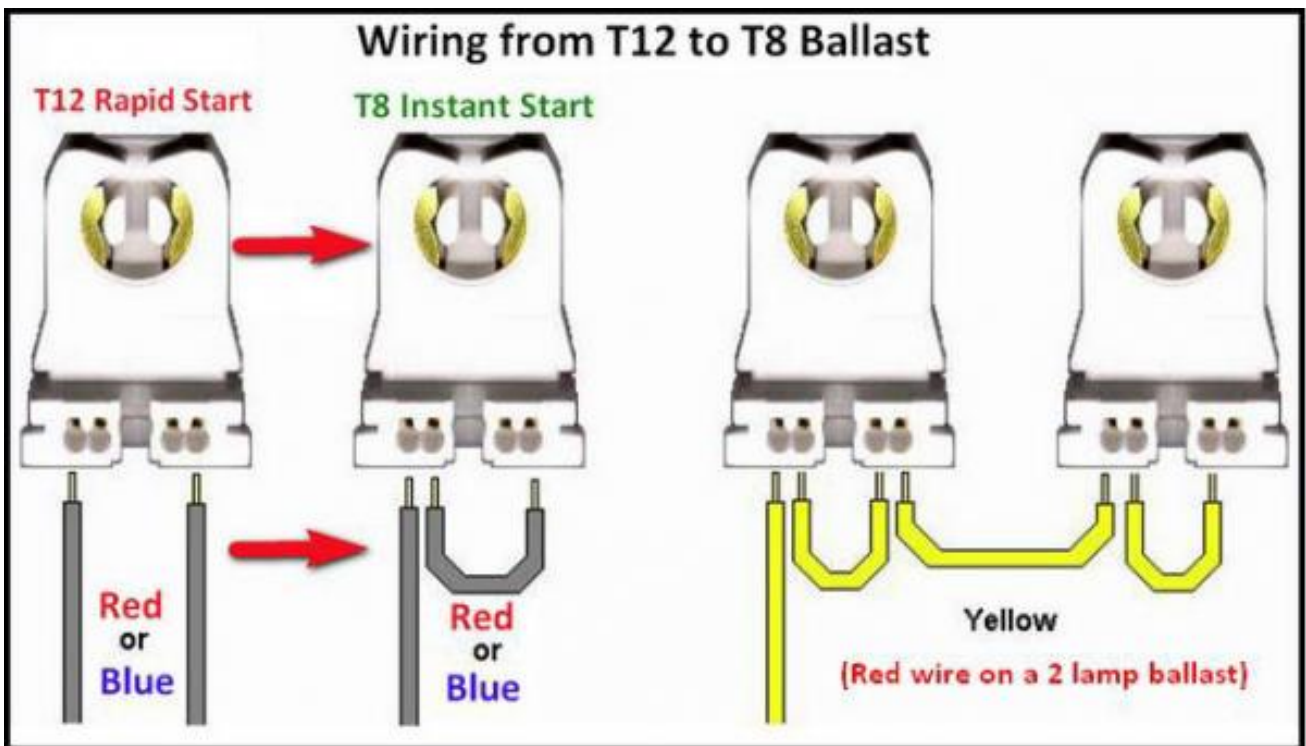
Bulb Type	Technology	Color Temp	Lumens	Watts	Lumens/Watt	Cost/Tube	Cost/Ballast
T12	Fluorescent	6500°K	2325	40	58	\$5	\$20
T12	Fluorescent	4100°K	2600	40	65	\$5	\$20
T8	Fluorescent	6500°K	2750	32	86	\$5	\$30
T8	Fluorescent	4100°K	2800	32	88	\$5	\$30
T8	LED	5000°K	1700	17	100	\$20	\$0
T8	LED (Instafit)	5000°K	2100	17	124	\$7	\$30
T5	Fluorescent	2700°K	5000	54	93	\$10	\$18

Converting fluorescent light fixtures from T12 to T8 bulbs

The wiring diagrams below should help in converting a 2-lamp T12 fixture to use T8 lamps.



“Tombstone” hookups: (I keep a heavy-duty T-pin in my toolkit to remove & replace wires from Tombstones thereby avoiding need for wire nuts.)



References:

- <https://diy.stackexchange.com/questions/37671/are-t-8-lights-and-t-12-lights-safely-interchangeable>
- <https://insights.regencylighting.com/shunted-vs.-non-shunted-sockets-how-to-tell-what-you-need>
- <http://www.homedepot.com/p/48-in-T8-16-Watt-Daylight-Linear-LED-Tube-Light-Bulb-A416-50210/205935902>