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A NEW WAVE OF LIGHT



UL WARNS OF POTENTIALLY HAZARDOUS DUAL-MODE LED TUBES – JULY 27, 2017

Agenda

- What are Type A, B, and C Tubes?
- What is a “Dual-Mode” or “Hybrid” Tube?
- How does UL treat the different tube types?
- Dangers Posed By Dual-Mode LED Tubes
- Public Awareness
- UL Warning
- MaxLite’s LED Tube offerings
- Q&A



Speaker:
Greg Galluccio – VP, Product Management Engineering

DUAL MODE LED RETROFIT TUBES RAISE SAFETY CONCERNS

Introduction: “Dual Mode” T-8 LED retrofit tubes have been increasing in popularity in the LED lighting marketplace. They are typically sold as a “one-size-fits-all” solution, making it difficult to sell against if you are offering a “Single Mode” product.

The typical sales pitch for the Dual-Mode tube is that there is no need for a ballast bypass when installing. All it takes is an easy direct retrofit into an existing 4-ft Fluorescent T8 fixture with an electronic ballast, and it’s ready to go. And later, once the ballast goes out, you can bypass the ballast and direct wire. There will be no need to purchase new ballasts. This might sound compelling, especially on a large volume project.

However, the Dual Mode products often pose safety hazards that are not well known in the marketplace but, if known, would likely be a very significant factor in the buying decision.

The purpose of this webinar is to alert MaxLite personnel to, and to provide detail concerning, these issues.

If there are any questions, please contact Greg Galluccio, VP, Product Management & Engineering, or Zvi Raskin, General Counsel.



WHAT ARE TYPE “A,” TYPE “B,” TYPE “C” TUBES

Type A: Ballast Compatible

Description: Installs directly onto existing fluorescent ballast

Advantages:

- Ease of installation
- No modification to fixture

Disadvantages:

- Lowest efficiency
- Lifetime is limited by the ballast
- Tubes must be tested for compatibility with existing ballast
- Limited dimming and control capabilities

WHAT ARE TYPE “A,” TYPE “B,” TYPE “C” TUBES

Type B: Bypass

Description: Existing ballast is removed from circuit, tube connects directly to mains voltage

Advantages:

- More efficient than type A
- Generally longer lifetime vs. type A

Disadvantages:

- Installation requires fixture modification and re-labelling
- May require socket replacement (shunted vs. non-shunted)
- Limited dimming and control capabilities

Type B Tubes come in two different possible connection types!

Single-ended vs. Double-ended

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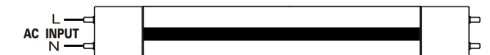
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T8 Bypass Tubes



WHAT ARE TYPE “A,” TYPE “B,” TYPE “C” TUBES

Type C: External Driver

Description: Existing ballast is removed from circuit. New external driver mounted in place of existing ballast.

Advantages:

Most efficient option – external driver is not limited to size constraints inside tube, can be highly efficient and incorporate sophisticated dimming and control circuits

Longest lifespan, best maintenance – no heating issues because driver is not coupled to LED's (heat source). Driver and Tubes can be replaced separately.

Disadvantages:

Installation requires fixture modification and re-labelling

Slightly more expensive than Type A or B

DUAL MODE (OR “HYBRID”)

Type A & B combined in a single tube

Description: Can be installed as either TYPE A or TYPE B. Some can also be installed in either single-ended or double-ended when in bypass mode.

NOT RECOMMENDED!

Advantages:

- Single SKU can be installed as desired

Disadvantages:

- Serious safety and/or liability concerns
- Subject to mis-use
- Deceptive marketing practices and mis-information

HOW A DUAL MODE TUBE IS CERTIFIED

Manufacturer submits the tube to UL for Listing under UL1993 (Self-ballasted Lamps) as a ballast compatible tube

Manufacturer then submits the same tube (either with the same model number or a different model number) to UL for Classification under UL 1598C (Retrofit Kits for Lighting Fixtures)

This procedure is acceptable to UL, and UL currently has little or no control over this practice.

The dual- mode tube can be marked either Type A, Type B or Type A/B. This is also currently acceptable to UL.



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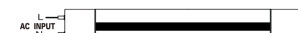
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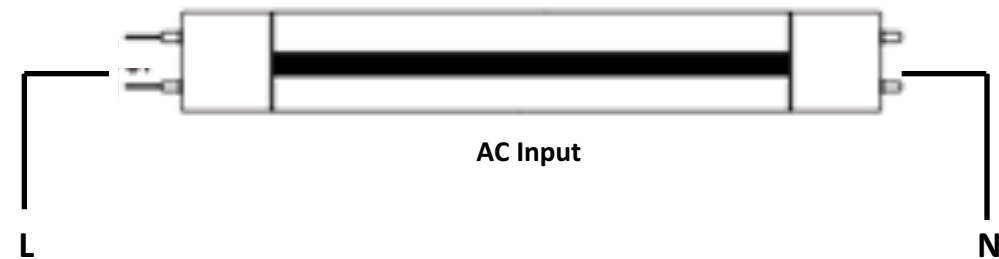
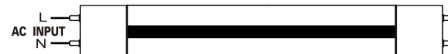
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T8 Bypass Tubes



WHAT ABOUT REBATES?

Currently, there are different rebates associated with Type A, Type B and Type C tubes.
Some utilities will not certify either Type A or Type B tubes and will only accept Type C tubes.

Some are rebating only Type A

Others are rebating only Type B

But how does the utility know what type of tube it's getting?

POTENTIAL RISK: If a utility determines that a tube is both Type A and Type B, but only offers a rebate for one of the two types, the rebate may be withheld.

PROBLEMS – NON COMPLIANCE

If the dual-mode tube is only marked “Type A” and provided with a UL Listing Mark, the tube should be installed directly to the ballast. However, the tubes are marketed as being able to install as either type. In addition, some sellers recommend that the fixture be re-wired from Type A to Type B in the event the ballast fails at some later date.

Usually in this case, the tube is not sold as a kit, but as a finished good. This means that none of the warning labels or other materials required under the retrofit classification certification will be provided with the tube. If it is then installed in ballast bypass mode, three major problems occur.

1. The UL Listing on the fixture will be voided, leaving the building owner liable for any problems that could occur.
2. The fixture will be wired as a Type B configuration, but the lamp will be marked Type A.
3. The actual wiring mode (single-ended or double-ended) will not be known by the end user.

PROBLEMS – POSSIBLE SHOCK HAZARD

MaxLite engineering cannot confirm that a dual-mode tubes with the capability to connect in either single or double-ended configurations can meet UL's shock hazard requirements per UL1598C. It is our belief that these products were tested with a certain circuit design in bypass mode, and a different circuit design in direct-fit mode. This would allow the product to pass both tests. However production products may be using a circuit design that does not pass the test. This has been confirmed by our internal testing.



PROBLEMS – POSSIBLE FIRE HAZARD

MaxLite is aware of several fires involving dual-mode tubes manufactured by James Industries.



James Industry Dual-Mode T-8 Replacement Tube Model No. ZY-T8-18W1200 BIXX in which the HOA fire began (cause under investigation).

“UL Warns of Potentially Hazardous Direct Replacement LED Tube Lamps (Release No. 17PN-07)”

NORTHBROOK, Ill., July 5, 2017 — The following is a notification from UL that the Direct Replacement LED Tube lamp identified below bears an unauthorized UL Mark for the United States and Canada and may pose a fire hazard. The LED lamp does not comply with UL Standards for Safety and is not authorized to bear the UL Mark for the United States and Canada.

Name of Product: Direct Replacement LED Tube, Model: ZY-T8-18W1200 BIXX

Units: Approximately 1000

Manufacturer: James Industry Group LLC

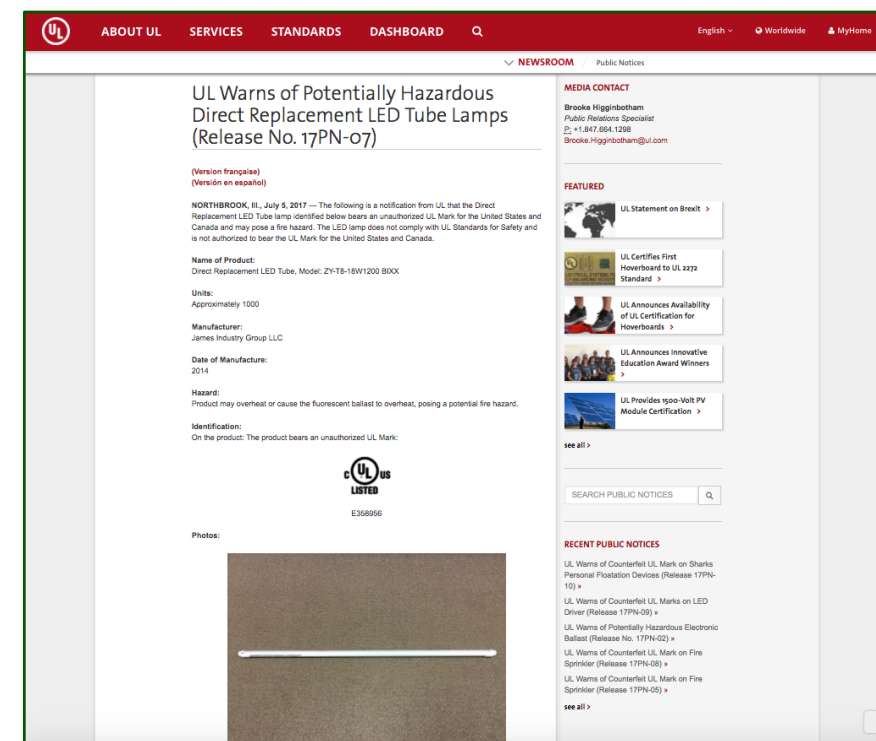
Date of Manufacture: 2014

Hazard: Product may overheat or cause the fluorescent ballast to overheat, posing a potential fire hazard.

Identification: On the product: The product bears an unauthorized UL Mark:



Source: <http://www.ul.com/newsroom/publicnotices/ul-warns-of-potentially-hazardous-led-tube-lamps/>



WHAT MAXLITE IS DOING

MaxLite has submitted a formal proposal to UL1993 requiring Dual-Mode tubes to be marked as Type A/B

This proposal is currently under review by the UL1993 standards committee and is expected to be adopted.

MaxLite is working with Utilities and other stakeholders to drive awareness of the potential issues associated with dual-mode tubes



WHAT ARE EXAMPLES OF THE DUAL-MODE LED RETROFIT TUBES THAT ARE CURRENTLY BEING SOLD?

- James Industries' "Magic Tube"

(Note that James Industries has gone through several name changes and manufactures and sells LED tubes under various names. Names associated with James Industries include Dongguan Pan American Electronic Co., Ltd, James Industry Group Co., Ltd., James Trading Company Ltd., Axis Led Group and A Electronics Co Ltd.)

- Aledra's "SureFit"
- EiKO's "LED T8 Dual Mode Replacement Lamp"
- Ledtronics' "LED T8 Ballast-Ready/Dual Mode Tube Lights"
- ABB Lighting's (Above All Others) "Dual Model Technology LED T8 Glass Tube"
- Super Lighting's "Dual Mode" retrofit LED T8 tube lamp
- Retrofit Lighting's "T8 dual mode LED tubes"
- HyLite's (a division of ARVA) "Dual-Mode Deluxe Tube"
- Emium Lighting's "dual mode LED T8's"
- Louvers' "All Purpose T8 LED Replacement Tube"
- Norman Lamps' "Hybrid" LED T8 Tubes"
- Costless Lighting's "Dual Mode Hybrid LED"

WHAT TYPES OF TUBES DOES MAXLITE MANUFACTURE?

Linear T8, T5 & U-Bend



LED U-Bend T8 - DirectFit



LED Linear T8 - DirectFit



LED Linear T8 - Internal Driver



PhotonMax Horticulture T8
Lamp



LED Linear T8 - External Driver



LED Linear T5 - DirectFit

MAXLITE LIGHTING & TECHNOLOGY UNIVERSITY



MaxLite University offers three FREE courses that include information on LED technology, fixtures, lamps, ENERGY STAR & other certifications.

Lighting Fundamentals – Lighting 101 (ALA: 4 CLC Credit Hours)
Lighting Fundamentals – Intermediate (ALA: 2 CLC Credit Hours)
Lighting Fundamentals – Advanced (ALA: 3 CLC Credit Hours)



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THANKS FOR ATTENDING!

QUESTIONS/ANSWERS

Thank you everyone for your attention! Please feel free to use this opportunity to ask any questions you may have about MaxLite or the products shown in this presentation.

FOR MORE INFORMATION ABOUT OTHER MAXLITE PRODUCTS, OR
FOR LIGHTING QUESTIONS IN GENERAL; PLEASE CONTACT:

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