

## EcoSystem and T-Series Digital Link Bus Class 1 and Class 2 Listing

EcoSystem and T-Series digital link digital fluorescent dimming ballasts and EcoSystem and T-Series digital link digital LED dimming drivers are connected together by a 2-wire low-voltage bus. The bus is designed for both Class 1 or Class 2 installations. This application note explains how the bus is installed in either type of configuration. The steps required by fixture manufacturers and electrical contractors to meet the National Electrical Code® (NEC®) are also detailed in this document.

### Wiring Details

#### EcoSystem and T-Series Digital Link Bus Wired as Class 1

In the configuration shown below, the EcoSystem and T-Series digital link buses are wired as Class 1.

- Class 1 circuits shall be permitted to be installed with other circuits as specified in NEC® requirement 725.48 (A) and (B)

(A) Class 1 circuits shall be permitted to occupy the same cable, cable tray, enclosure, or raceway without regard to whether the individual circuits are alternating or direct current, provided all conductors are insulated for the maximum voltage of any conductors in the cable, cable tray, enclosure or raceway.

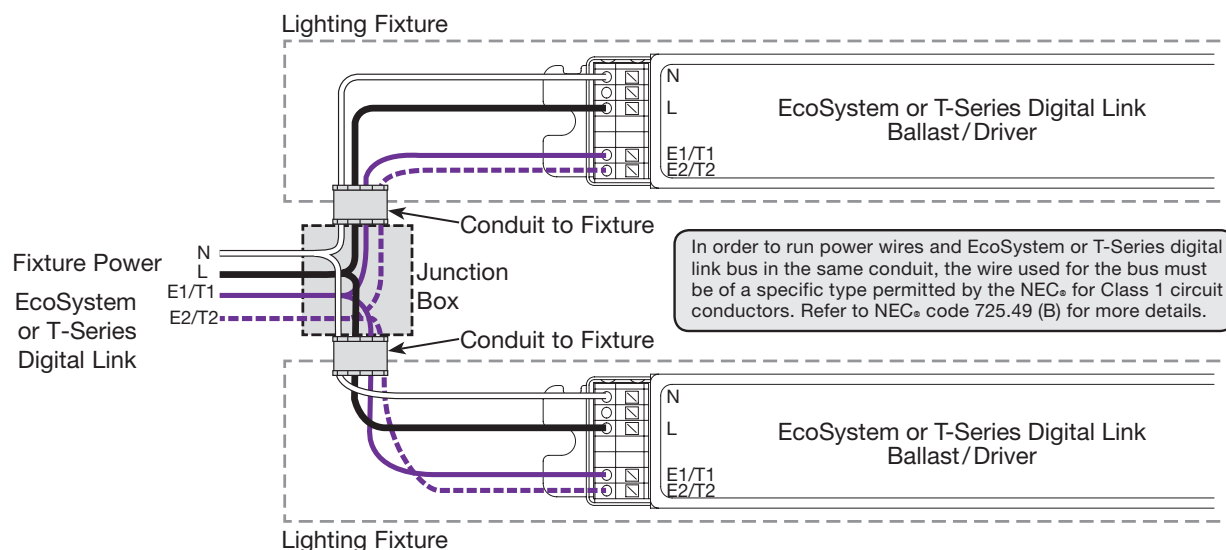
(B) Class 1 circuits shall be permitted to be installed with power supply conductors as specified:

(1) Class 1 circuits and power supply circuits shall be permitted to occupy the same cable, enclosure, or raceway only where the equipment powered is functionally associated.

- Since the EcoSystem and T-Series buses are designed for the more stringent requirements of a Class 2 installation, EcoSystem and T-Series bus devices can be installed in a Class 1 manner when Class 2 markings are eliminated. The NEC® allows the reclassification of Class 2 circuits provided (references to Class 3 eliminated):

*725.130 Exception No. 2: Class 2 circuits shall be permitted to be reclassified and installed as Class 1 circuits if the Class 2 markings are eliminated and the entire circuit is installed using the wiring methods and materials in accordance with Part II, Class 1 circuits.*

For more details on Class 2 wiring and additional Class 2 wiring requirements, see the NEC® Article 725.



## EcoSystem and T-Series Digital Link Bus Wired as Class 2

In the configuration shown below, the EcoSystem and T-Series digital link buses are wired as Class 2.

- For factory installed wiring, as per UL1598 section 6.17.1:

*Factory-installed power limited wiring and branch circuit wiring that come in random contact within the luminaire shall have insulation rated for the maximum voltage that exists in any of the circuits.*

As long as the properly rated insulation is used, no spacing or separation is required, regardless of the circuit conductor voltage.

- Class 2 wiring methods follow the NEC® Requirement 725.136(D) (references to Class 3 eliminated):

*Class 2 circuit conductors in compartment enclosures, device boxes, outlet boxes, or similar fittings shall be permitted to be installed with electric light, power, or Class 1 circuits where they are introduced solely to connect the equipment connected to Class 2 circuits, and where (1) or (2) applies:*

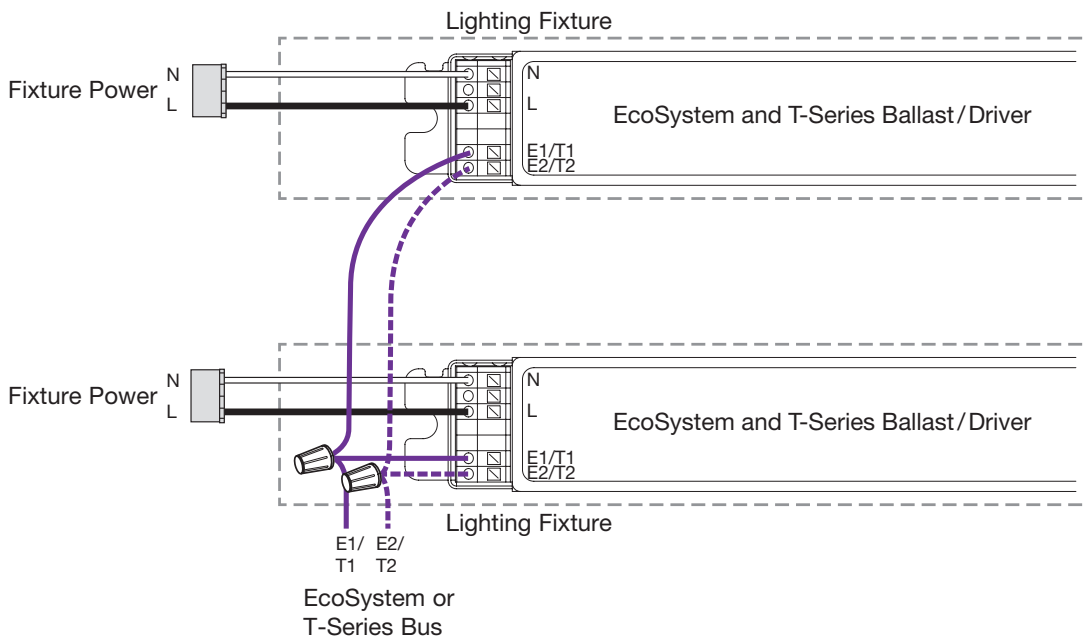
*(1) The electric light, power, or Class 1 circuit conductors are routed to maintain a minimum of 0.25 in (6 mm) separation from the conductors and cables of Class 2.*

*(2) The circuit conductors operate at 150 V or less to ground and also comply with one of the following:*

*a. The Class 2 circuits are installed using Type CL3, CL3R, or CL3P or permitted substitute cables provided these Class 3 cable conductors extending beyond the jacket are separated by a minimum of 0.25 in (6 mm) or by a nonconductive sleeve or nonconductive barrier from all other conductors.*

*b. The Class 2 circuit conductors are installed as a Class 1 circuit. (see below)*

- EcoSystem and T-Series ballasts and drivers have a minimum of 0.25 in (6 mm) spacing between line voltage and EcoSystem/T-Series bus terminals (E1/E2 and T1/T2) for Class 2 installations.



For more details on Class 2 wiring and additional Class 2 wiring requirements, see the NEC® Article 725.

## Reference Information

- Code quotation, guidance, and wiring guides in this document are listed for reference only. Always follow local and national wiring requirements.
- NEC® 2011 was used as a reference in this document. More recent releases of the NEC® should always be consulted.

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