A NEMA Lighting Systems Division Document

Incompatibility of T8 Ballasts (RS, PS, Dimming) and "Shunted" Bi-pin Lampholders

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Incompatibility of T8 Ballasts (RS, PS, Dimming) and "Shunted" Bi-pin Lampholders

Numerous ballast manufacturers have received and verified reports of incorrect applications of shunted bi-pin lampholders (tombstones) used with rapid-start (RS), programmed start (PS) and dimming ballasts. These incorrect applications have occurred in both new luminaires and field lamp and ballast retrofits.

For the purposes of this discussion, ballasts operating T8 rapid start lamps can be divided into two classifications; rapid-start and instant-start.

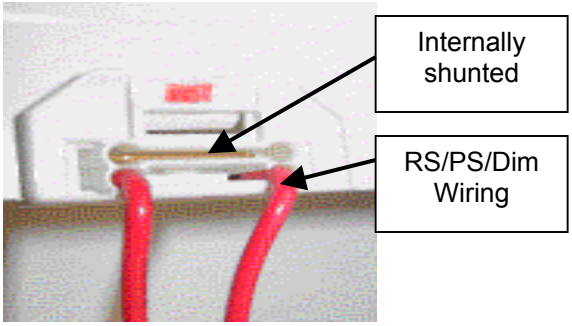
> Rapid-start, programmed rapid-start, and dimming models provide lamp cathode power before striking the lamp (and sometimes after operation) and require that two wires be connected between the ballast and each lampholder.
>
> Instant-start ballasts do not preheat the lamp cathodes and need only one wire between the ballast and each lampholder. Correct wiring of instant-start ballasts and rapid start lamps necessitates that the lampholder terminals be shorted together, either via wiring or the use of a shunted lamp holder. (See NEMA white paper LSD 2A, "Application Note: Wiring Requirements for T-8 Lamps with *Instant*-start Ballasts," March 30, 1998)

There are two basic types of lampholders, normal (or non-shunted), and shunted. A normal lampholder does not short or shunt the two lamp contacts within the lampholder, whereas a shunted lampholder shorts the two lamp contacts within the lampholder. Other than possibly a manufacturer's part number that is stamped or molded into the lampholder, it is very difficult to identify whether the lampholder is normal or shunted. These "shunted" lampholders were designed for instant start applications only.

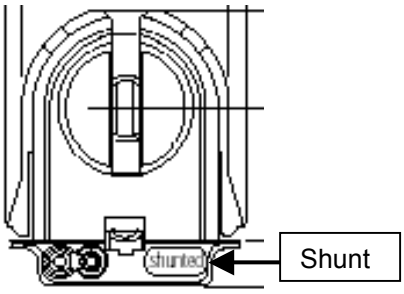
The lampholder must be matched to the ballast type as shown below.

Correct application of lampholders

Ballast type	Bi-pin lampholder type	
	Normal (non-shunted)	Shunted
Rapid-start, programmed-start	Use	**Do not use**
Dimming	Use	**Do not use**
Instant-start	Can use with external wiring shunt	Use



Incorrect application of shunted lampholder!



Example: Shunted lampholder

The incorrect application of lampholders can result in shortened lamp life ballast damage, and/or voiding lamp and ballast warranties.