NEMA Premium Brand Recognizes Industry's Most Efficient 4-Ft. T8 Ballasts

by Craig DiLouie

What is a "high-efficiency electronic ballast?" After all, aren't all electronic ballasts inherently high-efficiency electronic ballasts? What's the benefit? Why should I pay more for them? And how can I tell the difference between these and other electronic ballasts?

A high-efficiency electronic ballast is a special type of ballast offering high energy savings than standard products. It's a 4-ft. T8 electronic ballast that produces similar light output as a standard electronic ballast but does so more efficiently, typically producing 2-5W extra savings in lighting watts, or five to seven percent lighting energy savings (see Table 1).

High-efficiency electronic ballasts are popular for retrofits of T12 fixtures, as one would think, but their added savings also can make retrofits of older T8 systems financially attractive. As such, they're well-suited to almost any commercial application suitable for 4-ft. T8 lamps.

In an installation with (2) ballasts driving (4) lamps in fixtures mounted on 10x10 centers (100 sq.ft. area), using high-efficiency ballasts can add about $0.03–$0.06/sq.ft. to the cost of the project while reducing annual operating costs by about $0.04/sq.ft., based on an assumption of savings of $2/ballast (or $1/lamp) per year.

The problem is that there is no formal term for these ballasts, resulting in market confusion. Some manufacturers use the term "high efficiency" to describe these electronic ballasts, while others use it to describe all electronic ballasts.

To provide clarity and formally recognize the industry's most efficient ballasts for 4-ft. T8 lamps, the National Electrical Manufacturers Association (NEMA) launched the Premium Ballast program. The program, based on the successful NEMA Premium model for electric motors, creates an efficiency target and recognizes ballasts that meet it with a special logo that can be placed on the ballast label.

As of the time of writing, Advance (now Philips Lighting Electronics), GE Lighting, Robertson Worldwide, OSRAM SYLVANIA and Universal Lighting Technologies had all certified high-efficiency 4-ft. T8 electronic ballasts as NEMA Premium Ballasts. To see the Premium Ballast logo, see Figure 1.

Table 1. High-efficiency electronic ballasts can produce an additional five to seven percent energy savings in retrofits. Source: OSRAM SYLVANIA.

Model	Ballast Factor	Lamp/Ballast Input Power		Savings	
		Standard Electronic Ballast	High-Efficiency Electronic Ballast	Power	Percent
(1) T8 lamp	0.88	30W	28W	2W	7%
(2) T8 lamps	0.88	59W	55W	4W	7%
(3) T8 lamps	0.88	86W	82W	4W	5%
(4) T8 lamps	0.88	112W	107W	5W	5%

The efficiency target was developed by the Consortium for Energy Efficiency (CEE) in conjunction with NEMA, and is based on a metric called ballast efficacy factor, or BEF, which is BALLAST FACTOR ÷ INPUT WATTS x 100. This threshold became formalized by NEMA as an adopted standard—BL 2-2007—covering electronic ballasts for use with 4-ft. T8 lamps.

Recognizing the most efficient ballasts will help promote use of their use not only to end-users but also to designers of utility rebate program generic specifications, creating pull-through in the marketplace. More than 25 utilities, for example, use CEE minimum performance levels in their incentive programs.

For retrofit or spot replacement, NEMA recommendations the simple specification language: "Ballast shall be a NEMA Premium electronic ballast (do not substitute)." Then specify the starting method, number of lamps and ballast factor.

High-efficiency T8 ballasts:

- include instant-start, programmed-start and dimmable models;
- can be specified as low (<0.86), normal (0.86–1) and high (>1) ballast factor;
- are available with universal voltage;
- can be specified for operation of one, two, three or four lamps;
- may include features such as anti-striation and anti-arcing.

While the NEMA Premium program covers electronic ballasts for operation of 4-ft. T8 lamps at this time, it may expand in the future to cover T4, T5 and HID ballasts and possibly also LED drivers and power supplies.

Figure 1. The NEMA Premium Ballast mark.

NEMA Premium®

For more information about the program and to access a list of qualifying ballast models, visit www.nema.org/gov/energy/efficiency/index.cfm and click on the link, "NEMA Premium Electronic Ballast Program."

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