

# Building a Brighter Future

Your Guide to EISA-Compliant Ballast and Lamp Solutions

**PHILIPS**  
**ADVANCE**





# EISA Compliance Made Easy



The Energy Independence and Security Act (EISA) goes into effect on January 1, 2009 and promises to have a significant impact on your business. We fully understand this legislation as well as what compliance will require of our customers. As such, we have not only created a complete line of EISA-compliant products, but also paired them with new Philips lamps to provide total solutions for your luminaires.

Our offering includes:

- A complete line of 88% efficient core and coil pulse start ballasts ranging from 175W to 450W
- A new 150W SCWA ballast that, when combined with a Philips ceramic lamp, provides a more efficient, longer-lasting solution for 175W metal halide outdoor applications
- An expanded range of horizontal and protected lamps that allow you to offer luminaire options in all pulse start wattages
- High-efficiency electronic HID ballast solutions to replace magnetic F-cans in downlighting applications

Aside from meeting EISA regulations, our new high-efficiency products also provide significant benefits to your end users. More lumens, reduced wattage (more luminaires per circuit), energy savings, longer life lamps, and cooler running ballasts are all benefits that should be communicated and promoted to end users as the industry makes this important transition.

Together, we can achieve EISA compliance and build a brighter future.

## The Energy Independence and Security Act of 2007 (EISA)


Effective January 1, 2009, all 150-500W metal halide lamp luminaires must contain a ballast meeting the following minimum levels of efficiency:

- 88% for magnetic pulse start ballasts
- 94% for magnetic probe start ballasts
- 90% for electronic  $\leq$  250W probe start ballasts
- 92% (for lamps > than 250 watts)

Exceptions include luminaires that:

- Utilize regulated lag ballasts or 480V electronic ballasts
- Are rated for 150W lamps and wet locations and contain a ballast rated for use in an ambient temperature greater than 50°C

### Notes:

1. EISA does not require replacement of existing installations.
2. Compliant ballasts and luminaire packaging must contain the  emblem.
3. Product numbers of Philips Advance compliant magnetic ballasts end in "EE."



## Preparing Your Business for EISA

Fundamentally, the legislation means that manufacturers and end users alike must convert from probe start lamps and ballasts to pulse start lamps and ballasts for luminaires ranging from 175 – 400 watts for new installations.

Helping our customers to achieve EISA compliance, we offer a comprehensive line of 88% efficient pulse start ballasts.

Showing EISA compliance, luminaire packaging and ballast labels must now display a  $\text{E}$  emblem. In accordance with the law, we have added this emblem to all of our compliant Philips Advance ballasts. Further simplifying identification of our EISA compliant ballasts, we have also added an “EE” designation at the end of all corresponding part numbers.

### Cost Implications of Moving to 88% Efficient Pulse Start Ballasts

Clearly, the transition away from probe start technology will also have luminaire cost implications. Aside from the incremental lamp cost for the pulse start upgrade, high-efficiency EISA-compliant ballasts will also be more costly than probe start versions.

To meet the EISA ballast efficiency requirements, magnetic ballasts require greater amounts of high-grade steel laminations, as well as incremental amounts of copper magnet wire. This results in a cost differential for compliant product versus non-compliant product. The overall impact is greatest on our lower-wattage (175-250W) offering, moderate in the medium-wattage (320-350W) offering, and minimal for high-volume 400W pulse start ballasts.



Getting to 88% ballast efficiency requires higher grade steel and more of it, particularly at the lower wattages. This low-loss steel is significantly more expensive and has resulted in a “cost inversion” with the lower wattage ballasts now costing more than the higher wattage ballasts.

# The Benefits of Philips Advance Pulse Start Systems

Above and beyond meeting EISA ballast efficiency requirements, pulse start systems have a great deal to offer your customers.

With more lumens per watt, and improved lumen maintenance, pulse start luminaires can be spaced further apart than probe start luminaires. And with improved lumen output, end users can substitute lower wattage systems for even greater energy savings without sacrificing light levels (e.g. a 400W probe start system can be replaced by a 350W or 320W pulse start system). The opportunity to reduce the number of luminaires or reduce luminaire lamp watts can significantly lower end user's energy consumption. Savings can also be realized with high-efficiency pulse start ballasts (vs. probe start) that last longer due to their cooler operating temperatures.

With a lower total cost of ownership, these features combine in a powerful way and enable your end user's lighting system to pay for itself. The following chart compares the considerable improvements that pulse start systems have over probe start.

| Pulse Start vs. Probe Start Technology |              |             |           |                |
|--|--------------|-------------|-----------|----------------|
| Technology                             | Lamp Wattage | Mean Lumens | Lamp Life | System Wattage |
| EISA Compliant                         | 175W         | 11,200      | 15,000    | 198W           |
| Probe Start                            |              | 8,775       | 10,000    | 210W           |
| EISA Compliant                         | 250W         | 16,625      | 15,000    | 291W           |
| Probe Start                            |              | 13,500      | 10,000    | 295W           |
| EISA Compliant                         | 400W         | 29,280      | 20,000    | 452W           |
| Probe Start                            |              | 24,000      | 20,000    | 458W           |

## Value-Added Benefits of Philips Advance Magnetic Pulse Start Ballasts

All of our EISA-compliant ballasts have been designed to maintain a minimum efficiency of 88% on all voltage taps. Additionally, our ballasts meet all ANSI requirements, including particularly important parameters like sustaining voltage, which is critical to preventing nuisance lamp drop-out.

Unlike others in the industry, we insist on manufacturing our ballasts using a vacuum impregnation process. This process enables our ballasts to benefit from outstanding thermal performance, reduced hot spots, longer life, and significant reductions in noise and vibration.

# Beyond the Ballast – Philips Pulse Start Lamps

Philips Lighting has expanded our offering of pulse start lamps to meet your magnetic HID requirements. Unlike probe start lamps which are mostly “universal” in lamp orientation, pulse start lamps are predominantly position-specific. While not as versatile, position-specific lamps provide significantly better lumen output than universal position lamps. Ceramic lamps are a high CRI option ideal for retail or other color-sensitive applications. Below is an overview of applicable Philips lamps for your pulse start applications.

| Wattage | ANSI | Quartz               |        |            |                    |        | Ceramic       |        |
|---------|------|----------------------|--------|------------|--------------------|--------|---------------|--------|
|         |      | Base-Up or Universal |        | Horizontal | Protected Base -Up |        | 4000K, 92 CRI |        |
|         |      | Clear                | Coated | Clear      | Clear              | Coated | Clear         | Coated |
| 175W    | M137 | BU                   | -      | HOR (New)  | BU (New)           | -      | BU            | BU     |
| 250W    | M138 | BU                   | -      | HOR (New)  | BU (New)           | -      | BU            | BU     |
| 320W    | M132 | U                    | U      | U          | BU                 | BU     | BU            | BU     |
| 350W    | M131 | BU                   | BU     | HOR        | BU                 | BU     | BU            | BU     |
| 400W    | M135 | BU                   | BU     | HOR        | BU                 | BU     | BU            | BU     |



# The EISA Exception

## 150W Magnetic Ballasts for Wet Location Luminaire Use

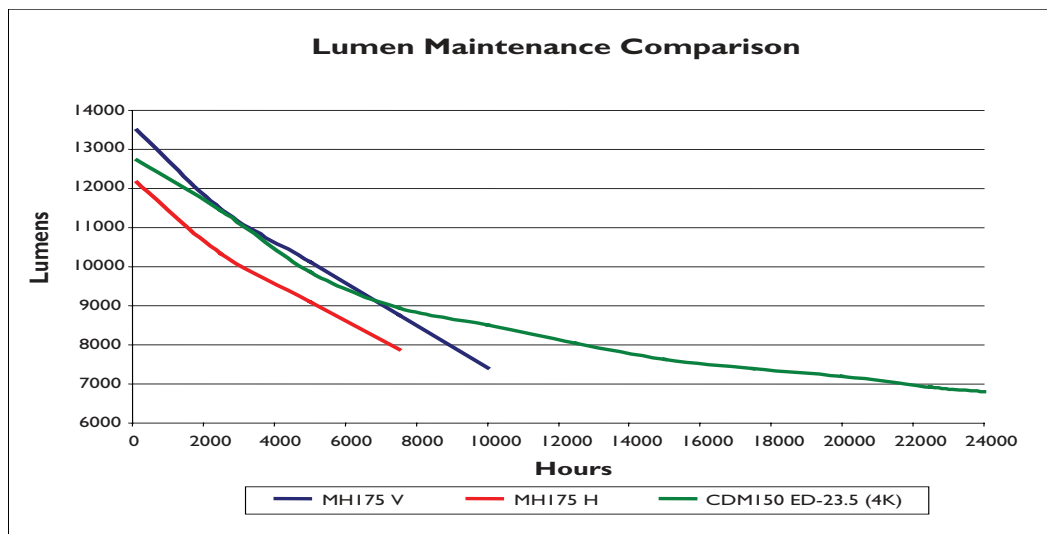
Exempt from EISA legislation are 150W ballasts in luminaires for use in wet locations where the ballast is suitable for use in ambient temperatures of 50°C or greater. This is a reasonable exception, as it is not economically feasible to manufacture 88% efficient 150W magnetic ballasts. Moreover, electronic ballasts have some difficulty operating in today’s outdoor luminaires.

Not only will this exception allow the continued use of 150W lamps and ballasts in wet location (outdoor) luminaires, but when combined with a Philips ceramic lamp, it will provide a longer lasting, more energy efficient, and more cost effective replacement for 175W probe start systems.

Philips 150W ceramic lamps are available in both medium base ED-17 and mogul base ED-23.5.

Philips Advance has created a new SCWA 150W “quad” ballast that will allow this great lamp performance, while allowing even more luminaires per circuit than 175W systems. This overcomes a draw-back of HX 150W ballasts that have a greater maximum current parameter.

As seen below, our 150W SCWA ballast and ceramic lamp solution is an ideal replacement for 175W metal halide systems. It provides significant improvements in lumens, lumen maintenance, lumens per watt, rated lamp life, CRI, and system watts.



| Lamp Type                           | 175W Quartz Metal Halide |            | 150W Ceramic Pulse Start |
|-------------------------------------|--------------------------|------------|--------------------------|
|                                     | Vertical                 | Horizontal | Universal                |
| <b>Wattage</b>                      | 175W                     | 175W       | 150W                     |
| <b>Initial Lumens</b>               | 13,500                   | 11,475     | 13,000                   |
| <b>Lumens at 40% Life</b>           | 9,100                    | 7,735      | 9,750                    |
| <b>Lumen Maintenance @ 40% Life</b> | 65%                      | 65%        | 75%                      |
| <b>Rated Lamp Life</b>              | 10,000                   | 7,500      | 20,000+                  |
| <b>CRI</b>                          | 65                       | 65         | 92                       |
| <b>Initial Run-up</b>               | 2 min.                   | 2 min.     | 2 min.                   |
| <b>Restrike</b>                     | 8 min.                   | 8 min.     | 4 min.                   |
| <b>Mercury Content (mg)</b>         | 28                       | 28         | 11.4                     |
| <b>Type of Ballast</b>              | CWA                      | CWA        | HX/SCWA                  |
| <b>System Watts</b>                 | 210                      | 210        | 185/189                  |
| <b>Max Current @ 277V</b>           | 0.8                      | 0.8        | 1.6/0.7                  |
| <b>Initial LPW</b>                  | 64                       | 55         | 70                       |
| <b>Design LPW</b>                   | 43                       | 37         | 53                       |

### Pulse Start Igniters

Unlike probe start systems that have a starting probe in the lamp, all pulse start systems include an ignitor that provides an electrical pulse to start the lamp. It is the absence of this starting probe that is largely responsible for pulse start's greatly improved lumen maintenance. The ignitor also allows pulse start systems to have faster lamp run-up and restrike.

In the case of lamp end-of-life, or an empty lamp holder, the ignitor will continuously pulse until the condition is removed. This "lamp cycling" stresses both the ignitor and the ballast. Designed and manufactured to withstand this condition for extended periods of time, Philips Advance ballasts easily handle these conditions without compromising the life or performance of the system. We owe this outstanding performance to a robust ignitor design and ballast vacuum pressure impregnation process that minimizes "hot spots" that can occur in voids in the windings.

### LISOD™ Ignitor Shut-off Device

Since spot lamp replacement is not always possible, some customers will not want the visual distraction of end-of-life lamps starting and cycling off. To meet this need, Philips Lighting Electronics has developed an ignitor shut-off device that cuts power to the ignitor after 15 minutes if the lamp fails to ignite. The device is of similar size to that of a standard ignitor and is powered off the 120V tap of the ballast, and is compatible with all Philips Advance EISA-compliant SCWA ballasts. Your customers should be made aware of this value-add option.

## Solutions for F-Can Applications

Due to dimensional limitations, EISA-compliant pulse start ballasts will not be available in an F-can configuration in medium wattages. This means that starting January 1, 2009, magnetic 150W – 400W (120V/277V) metal halide and pulse start F-can ballasts will no longer be available to our OEM customers.

Philips Advance e-Vision® 150W and 175W pulse start electronic ballasts are ideal energy-efficient and EISA-compliant alternatives to non-compliant magnetic probe start and pulse start F-can ballasts.

| F-Cans      |             | EISA-Compliant Alternatives |   |
|-------------|-------------|-----------------------------|---|
| Probe Start | Pulse Start | Now Available               | Coming Soon                                       |
| 175W        | 150W        | e-Vision® (IMH-150)         | MasterColor® Elite 150W Lamp with e-Vison Ballast |
|             | 175W        | e-Vision (IMH-175)          |   |
| 250W        | 250W        | -                           | MasterColor Elite MW 210W System                  |
| 400W        | 320W        | DynaVision® (208 - 277V)    |   |
|             | 350W        |                             |   |
|             | 400W        |                             | MasterColor Elite MW 315W System                  |



# A Positive Change with Great Opportunity for End Users

Though more costly, forced conversion to pulse start technology is a step in the right direction for energy efficiency and the environment. Moreover, it provides better lighting and makes the industry stronger by establishing national performance standards.

Of greatest benefit to you, the legislation provides an opportunity to adjust your product offering, shedding older and unprofitable SKU's for EISA-compliant products that can be sold at higher profit margins. Additionally, you have the opportunity to educate your end users on the superiority of pulse start technology, and ultimately help end users to think beyond initial system cost to the on-going performance and savings realized over the system's lifetime.

Though challenging, the change to pulse start does not have to be difficult, for you, or your customers. This brochure was created to help you with your transition, and provide the technical and product information you need to move your business forward.



**The move to pulse start technology is here and we can help.**

The most preferred manufacturer in the industry, Philips Lighting Electronics has been the leader in ballast technology for well over 60 years. Leading the way with EISA-compliant ballast solutions is no exception.

EISA's effective date of January 1, 2009 is approaching quickly, so now is the time to prepare your product offering, educate your customers on the implications of the legislation and promote the benefits of pulse start technology. The good news is that if executed successfully, your business can benefit from the conversion, providing that you understand the EISA-compliant alternatives and can effectively match them to your customer's needs. At Philips Lighting Electronics, we have the products and know-how to help you with the transition, so you can count on us for help.





# Take the next step

The clock is ticking, but you don't have to go it alone. We can help you prepare and take advantage of this legislation-driven change. But planning is crucial, and the time to act is now. For more information on EISA legislation, your product options, or for help in moving your business forward with pulse start technology, contact your Philips Lighting Electronics sales representative today.



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Form No. RT-8140-R01 09/08

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