

Don't get your fingers burnt: The truth about electronic ballasts

In an increasingly technical world it is easy to be blinded by science. Some of the claims made by ballast suppliers about electronic ballasts are quite simply, not true. We hope this article will help you make your own mind up about the claims surrounding electronic ballasts.

For example, exaggerated claims have been made about the efficiency of electronic ballast and of the higher lumen output from lamps being operated with them. Higher lamp lumen output is ONLY achievable if the ballast has been designed and manufactured to operate the lamp at a higher wattage. Most 600W magnetic ballasts on the market will achieve up to 95000 lumens if used with a lamp capable of this output.

It is important to note that with any ballast, the wattage rating does not necessarily accurately reflect the power it consumes. For example a typical "600W ballast" in reality consumes around 660W, the 60W is lost in heat.

However there are units available on the market that do indeed achieve a significant increase in lumen output but they do this by consuming more power. For example a 650W electronic ballast consuming 700W will give an output of 105,000 lumens.

Except for higher wattage units all other electronic ballasts have a designated 'standard' wattage; For example, a 'standard 600W electronic ballast can only operate a lamp to achieve the same light output as a 600W 'standard' magnetic ballast - there is no exception to this rule.

It is important to realise that although an electronic ballast is marginally more efficient than a magnetic ballast, you will never get "something for nothing" or to put it as Einstein did, $E=mc^2$! Currently, the ONLY way to achieve a significant higher efficiency (lumens per watt) is with the lamp design and not the ballast.

Advantages of electronic ballasts are:

- Silent operation
- Light weight
- Low running temperature
- No high start-up current
- Resonant (soft) start technology; extending lamp life
- A few electronic ballasts maintain lumen output throughout the life of the lamp

Disadvantages of electronic ballasts are:

- Some electronic ballasts have inadequately shielded reflector cables resulting in RF interference
- Higher initial cost outlay compared to magnetic ballasts
- Designed as a non serviceable disposable product

	400W Magnetic Ballast	400W Electronic Ballast	600W Magnetic Ballast	600W Electronic Ballast	650W Electronic Ballast
Lamp	400W SON+		600W SON+		
Power Consumption (W)	440	430	660	645	700
Lamp Power (W)	400	400	600	600	650
Lumen	55,000	55,000	95,000	95,000	105,000

Why aren't we talking in Amps and Current?

There are some misconceptions about what makes a ballast more efficient. If we are talking about "How much will this ballast cost to run and how much light will I get out of it?", then we need to be talking in watts, as the lumens the lamp emits is proportional to the watts, more watts more lumens. At the end of the day, the user will pay for the number of watts they have used and for how long they have used them (measured in kilowatts/hour or 'kW/h') as found on an electricity bill, so Amps/Current as far as this question is concerned are irrelevant.

Efficiency fact:

The results show that both a 400W and 600W electronic ballast are only 2.3% 'lumens per watt' more efficient than their equivalent magnetic version. For example, a 600W Electronic ballast consumes 645W to deliver the same amount of lumens as a magnetic ballast which consumes 660W. This is a saving of 15W, so for every hour you run the system you would save £0.001 (based on a typical electricity price of £0.08 kW/h).

Lamp output fact:

As you can see from the table, if the 'lamp power' is the same, the output 'Lumens' remain the same. Therefore, the only real way to achieve a higher lamp output is to operate the lamp with more power.

Power saving fact:

Currently, there is no more than around 2.3% power saving when using an electronic ballast compared to the equivalent magnetic ballast.

Conclusion:

As you can see there are advantages and disadvantages to electronic ballasts and there is much to take into account when deciding on conventional magnetic control gear or electronic control gear. If your reason for buying an electronic ballast is to save money, power and get extra light then it is important to look at the facts.