

Electronic lighting ballasts



Cost efficient – Ergonomic – Environmentally conscious

Electronic Ballasts – healthier, convenient, cost-effective

Flicker-free light without Electromog

Fluorescent lamps with electronic ballasts produce minimal magnetic field strengths, thus avoiding magnetic stray fields and electromog. In addition, their higher operating frequencies make these luminaires completely noise-free – the so-called “50 Hz” hum does not occur. The electronic ballast also ensures a gentle, flicker-free light. Electronic ballasts therefore play an important part in providing a fatigue-proof, healthier work environment.

Greater convenience and control

Electronic ballasts are more convenient. Before starting up, the fluorescent lamp filaments are briefly pre-heated, so that a sufficiently high firing pulse is available when the lamps are switched on. This in turn provides a flicker-free instant start. Luminaires operated with electronic ballasts are appropriate for use in modern light control systems, making them ideal for modern office and business premises. Furthermore, the electronic ballast switches off the lamp at the end of its service life, and thus eliminates irritating fluorescent flicker.



FD 8

Less lamp waste = more environmentally friendly

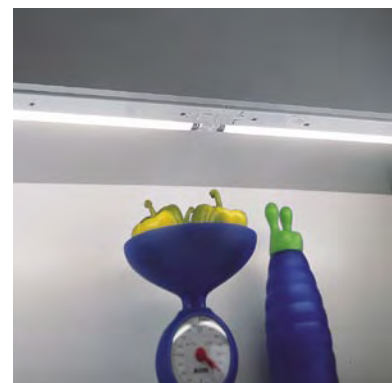
Fluorescent lamps with electronic ballasts consume 25 % – 30 % less energy than systems with magnetic ballasts. The average service life of the lamps is also extended by more than 50 %. Less mercury and other waste products are therefore generated. The total volume of lamp waste is reduced by about 30 %. The amount of hazardous waste for disposal in industrial, commercial or public areas, or for recycling, correspondingly decreases.



FD 5

Lower energy and replacement costs

Electronic ballasts are more cost-effective than magnetic ballasts in 3 different ways. Firstly, the electronic ballast functions about 22 % more efficiently than a magnetic ballast. Secondly, the fluorescent lamp requires less power, as it is not switched off at every zero-crossing of the AC voltage and thirdly, apart from an energy saving of 25 % – 30 %, the service life of the lamp increases by more than 50 % resulting in a massive saving in lamp replacement costs. Thanks to electronic ballasts, the replacement intervals in public lighting systems have been extended from 2 to 4 years.



FD 44



FD 8

It makes sense to switch – Electronic Ballasts and EU Policy

Since the signing of the Kyoto Protocol, reducing CO² greenhouse gas emissions has been a global environmental target and a road map of EU policy. By 2012 the EU as a whole aims to cut CO² emissions by 8 %, and Germany by a huge 21 %. A raft of new or tougher EU directives have already been adopted, many of which impact on the electrical and lighting industry. Further directives are in progress or will follow.

Fluorescent lamps are the most widespread light source in Europe – 150 million of them are installed each year. It is hardly surprising, therefore, that one directive is devoted entirely to “energy efficiency requirements for ballasts for fluorescent lighting”. Since late 2005 ballasts of high-loss energy classes C and D (since 2002) have been banned. Today only appliances of energy classes A and B are permitted (see overview).

The future belongs to electronic ballasts. It makes sense to switch – not only to meet CO² targets, but also for reasons of efficiency and economy.

Overview:

Approved per EU directive 2000/55/EG	
Class A1	Dimmable electronic ballasts
Class A2	Low-loss electronic ballasts
Class A3	Electronic ballasts
Class B1	Very low-loss magnetic ballasts
Class B2	Low-loss magnetic ballasts
Banned since 21.11.2005:	
Class C	Moderate-loss magnetic ballasts
Banned since 21.05.2002:	
Class D	High-loss magnetic ballasts

Cost comparison Magnetic Ballasts/Electronic Ballasts

Ballasts, as well as fluorescent lamps, use energy (technical term: power loss). Therefore, there is double the incentive to switch from conventional magnetic to electronic ballasts:

1. Energy costs:

A 58 W luminaire with T8 fluorescent lamps uses the following power:

Operation with magnetic ballast	70 W
Operation with electronic ballast	59 W
Difference in power dissipation	11 W

At a usage of 8 hours per day, and a unit price of € 0.17 per kWh, this adds up to an annual saving in energy costs of **€ 5.46 per lamp**.

For a medium-sized business with 500 luminaires, this equates to **€ 2,730 a year**.

2. Replacement and maintenance:

In addition, using electronic ballasts extends the average service life of fluorescent lamps from 13,000 to 20,000 hours:

Service life with magnetic ballast	Service life with electronic ballast
13,000 : (8h x 365 days) = 4.45 years	20,000 : (8h x 365 days) = 6.85 years

Therefore, because the lamps only have to be replaced 2.4 years later, this means a major saving in replacement lamps and labour costs:

For a medium-sized business with 500 lamps this equates to:

Fluorescent lamps	x	(unit price + labour)	/ years =	annual cost
500	x	€ 3.5 + € 10	/ 4.45 =	€ 1,517
500	x	€ 3.5 + € 10	/ 6.85 =	€ 985
Savings =				€ 532 per year



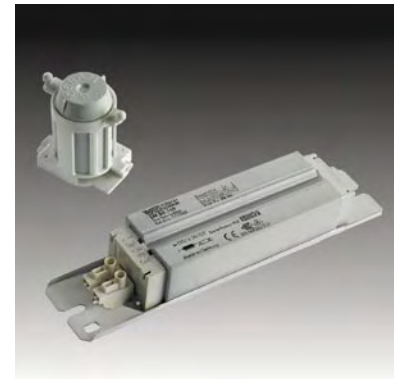
FD 8

13 advantages at a glance:

- Flicker-free instant start
- Glimmer-free light due to high operating frequency
- No stroboscopic effect
- No electrode flicker
- No system hum (silent operation)
- Reduced operating costs due to improved energy efficiency
- Significant increase in lamp service life
- Minimal energy loss
- Immunity to mains voltage and frequency fluctuations
- Safety shut-down of defective lamps (end of life)
- Low heat generation on the lamp
- Low maintenance costs (starter replacement)
- No starter required



today



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