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The  
Lighthouse

**FEGIME**  
IRELAND **ENERGY**

# Quality Energy Saving Solutions

Save Energy

Save Money

Save on Carbon Emissions

Save Your Environment

## Welcome to Fegime Ireland's guide to Quality Energy Saving Solutions

Fegime Ireland is a group of Irish family owned independent electrical wholesalers working together to improve our ability to service the electrical distribution market in Ireland.

Fegime Ireland currently has 9 members in Ireland with 25 outlets across the country and we have a further 175 partners throughout Europe in the different member states.

A detailed list of these members and their contact details can be found on the back page of this brochure or online by visiting [www.fegime.ie](http://www.fegime.ie)

Fegime Ireland was founded in 2002 and became an associate member of Fegime in that year. 2003 saw Fegime Ireland become a full member and shareholder of Fegime GmbH.

Fegime provides our members with the strengths and buying power of a big multi-national without compromising service, quality or personality.

**Fédération Européenne des Grossistes Indépendants en Matériel Electrique** translates to European Federation of Independent Electrical Wholesalers.

For you our customer we believe that this brochure can help you considerably reduce your energy costs through various methods from lamp upgrades and energy efficient fittings to solar panels and variable speed drives. In conjunction with many of the world's leading manufacturers we have put together a sample of the product our members can offer that can cut your energy costs, reduce your carbon footprint and help the environment. The content of this brochure is just a sample of the many products and solutions that our members can offer.

Information on the phase out of incandescent lamps under the EuP directive can be found at the start of this brochure which outlines the effect the phase out might have on you or your business. This brochure will offer you a range of alternatives to the lamps that are being phased out. Forward planning is essential and this information will help in making better long term

financial decisions in relation to lighting. Knowing what lamps will no longer be available in the future will ensure that any fittings purchased will be "future-proofed".

Information about the Accelerated Capital Allowances scheme (ACA) is also included to show how the purchase of energy efficient equipment can be written off, to 100% of their value, against a tax bill in the year of purchase for any company that operates and pays corporation tax in Ireland.

"Going Green" and "Energy Saving" are no longer just phrases that we hear because of corporate responsibility or peoples view on the environment. These phrases are essential facts that will affect all users of energy in the future. With changing laws and regulations governing what we can use and with energy costs set to increase into the future there really is no option but to lower our energy consumption.

The savings for individuals by changing their existing lamps to low energy alternatives can provide huge savings on electricity bills. CFL & LED lamps last up to 20 times longer than conventional lamps meaning the initial high cost is more than recouped over time before the energy savings are taken into account. For example by switching from a 50W lamp to a 7W 45,000 hour equivalent a saving in excess of €320 per lamp can be achieved over its lifetime based on current energy costs of €0.167/kWH.

For commercial and industrial users the savings can be enormous. Any business that has constant lighting or has machines running will find products and solutions in this brochure to help reduce their energy costs.

Combining products such as presence detectors and low energy lamps in offices or classrooms can achieve very quick payback results.

We hope this brochure is a help to all users of energy from domestic to high end industrial. Please feel free to contact your nearest Fegime member for more information on any of the products contained in this publication.

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# OWNL<sup>®</sup>

## Wireless Energy Monitor

Keep an eye on your electricity bills.

Save money and the environment.

### **OWNL Wireless Electricity Monitor,**

provides up to the second information on the amount of electricity you are using in terms of power, cost and your carbon footprint.

This means you can see in real time the benefits of turning off electrical devices at home. Whether it's turning off at the plug rather than just using standby, or simply turning off a light, **OWNL** shows you the cash impact of changing your habits and behaviours which could amount to savings of hundreds of pounds per year.

**OWNL Wireless Electricity Monitor,** now features a cumulative memory feature, making it easier than ever to monitor your electricity usage.

By enabling you to see for the first time how much electricity you are using, as you use it, OWL Wireless Electricity Monitor will help you to manage your electricity consumption and your carbon footprint. Simple to install, OWL Wireless Electricity Monitor easily connects to your electrical supply without the need for an electrician.



# Phasing Out Of Incandescent Lightbulbs

## EU Regulation on non-directional household lamps (lightbulbs)

Under EU Regulation (EC) No 244/2009 with regard to ecodesign requirements for non-directional household lamps (lightbulbs), inefficient incandescent lightbulbs will be phased out throughout Europe with effect from the 1st September 2009 and will be replaced by more energy efficient alternatives such as halogen lamps and compact fluorescent lamps (CFLs). This Regulation was agreed by Member States in December 2008.

### Aim of the Regulation

The aim of the Regulation is to remove the most energy inefficient lightbulbs from the market in favour of more energy efficient alternatives. This will save energy and will save consumers money in reduced electricity bills. Lighting may represent up to a fifth of a household's electricity consumption. Sustainable Energy Ireland's (SEI) power of one campaign has identified the use of energy efficient lightbulbs over traditional lightbulbs as one of their top ten energy saving tips in the home.

### What can you save by switching to energy efficient bulbs?

Replacing 3 x 100W incandescent lightbulbs with CFLs using 3 hours of electricity per day can save an average household up to €43 per annum. Most energy efficient lightbulbs, such as CFLs and halogen lightbulbs, are available in various configurations and although they cost more to purchase, are far more energy efficient thus reducing electricity costs. For example, a CFL

lightbulb uses 80% less electricity than an equivalent incandescent lightbulb and typically lasts eight to twelve times longer. A new halogen lightbulb uses 30% less electricity and lasts twice as long as an ordinary incandescent lightbulb. Advances in technology mean that energy efficient lightbulbs are now available in a wide variety of fittings, shapes and sizes.

### Energy Rating

All ordinary bulbs (excluding spotlights and reflector bulbs) are given a rating to indicate their efficiency. This rating is found on the packaging for each bulb. This chart explains the ratings of both ordinary and energy efficient bulbs where A is the most efficient.



### How will YOU be affected?

The Regulation will only apply to the products that are "placed on the market" (sold by the manufacturer or importer) after the first phase of the requirement. Therefore, since the 1st September 2009 stocks that were already on shelves of the retailers or in retailer stocks before 1st September will continue to be sold until they run out. The following pages display graphically which lamps will be phased out in each year until 2012. The table below shows the summary of the consequences of the EuP directive on Household, Street, Office, and Industrial Lighting.

Household Lighting	
2009	<b>September 1st</b> ✓ Clear lamps: Minimum requirement Energy Class C for lamps 950 lm, Class E for other lamps (e.g. phase out GLS 100 W) ✓ Non-clear lamps: Minimum requirement Energy Class A for all lamps (at present some CFLi and LEDs) ✓ Requirements for new product information on the packaging ✓ New technical specifications required for each technology
2010	<b>September 1st</b> ✓ Clear lamps: Minimum requirement Energy Class C for lamps 725 lm (e.g. phase out GLS 75 W)
2011	<b>September 1st</b> ✓ Clear lamps: Minimum requirement Energy Class C for lamps 450 lm (e.g. phase out GLS 60 W)
2012	<b>September 1st</b> ✓ Clear lamps: Minimum requirement Energy Class C for lamps 60 lm (e.g. phase out GLS 7 W)
2013	<b>September 1st</b> ✓ Increased requirements for technical specifications, defined in 2009 ✓ Phase out lamps with S14, S15 or S19 bases
2014	✓ Review of the regulations by the EU Commission
2016	✓ Clear lamps: Minimum requirement Energy Class B for all lamps except those with G9 and R7s bases (= phase out the current Class C HALOGEN ENERGY SAVER) ✓ Phase out lamps with E14/E27/B22d/B15d bases and voltages 60 V

Street, Office and Industrial Lighting	
2010	<b>April 1st</b> ✓ T8 halophosphate fluorescent lamps* ⇒ phase out
2012	✓ T12 fluorescent lamps* ⇒ phase out ✓ High-pressure sodium lamps (HPS): HPS standard quality (only E27/E40/PGZ12 affected) ⇒ phase out ✓ Metal halide lamp lamps (MH): Less efficient MH lamps (only E27/E40/PGZ12 affected) ⇒ phase out
2014	✓ Review of the regulations by the EU Commission
2015	✓ High-pressure mercury lamps (HPM) ⇒ phase out ✓ Plug-in/retrofit high-pressure sodium lamps** ⇒ phase out (= direct replacement for HPM)
2017	✓ Poor performing metal halide lamps (MH) (only E27/E40/PGZ12 affected) ⇒ phase out

\* through minimum efficiency requirements

\*\* Plug-in lamps must correspond to Super/Plus HPS level; almost all plug-in/retrofit lamps will be banned Information correct as of September 2009; data may differ from the final EU directive.

# EuP Directive on 'Non-Directional Domestic Lighting' Phase 1

## What is the purpose of the EU Directive?

- The new EU directive is part of a package of measures from the EU which aims to significantly reduce the energy consumed by electrical devices over an 8 year transitional phase starting September 2009.
- The primary aim of this directive is to protect the environment by reducing CO<sub>2</sub> emissions.

## • Facts:

- There are 3.5 billion light bulbs installed in Europe – 85% of those currently used in European households are not energy efficient.
- Conventional bulbs waste electricity. Only 5% of the energy they consume is used to generate light!

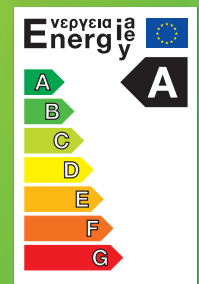
## What is the actual benefit for the environment?

- Over 1/3 of the electricity used worldwide for lighting can be saved.
- These savings of over 900 billion kWh of electric power would lead to a reduction in global emissions of more than 450 million tonnes of CO<sub>2</sub>.

## The EU ban on incandescent lamps:



Future-proof:  
OSRAM energy-saving lamps, e.g. Mini Ball



Ban on sales from  
September 1

**2009**

GLS incandescent lamps  
**from 80W**  
(950 lm) and all frosted  
GLS incandescent lamps\*

Ban on sales from  
September 1

**2010**

GLS incandescent lamps  
**from 65W**  
(725 lm)

Ban on sales from  
September 1

**2011**

GLS incandescent lamps  
**from 45W**  
(450 lm)

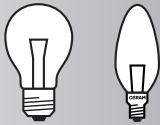
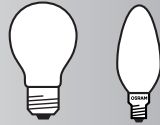


Ban on sales from  
September 1

**2012**

GLS incandescent lamps  
**from 7W**  
(60 lm)

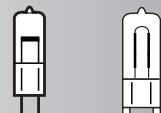



\*Except Energy Class A and highly efficient lamps in Energy Class B which may

## Consequences of EuP Directive: GLS incandescent products

	Sept 2009*	Sept 2010	Sept 2011	Sept 2012	Sept 2013	Sept 2014	Sept 2015	Sept 2016
<b>Clear</b> 	15W 25W 40W 60W 75W 100W	15W 25W 40W 60W 75W 100W	15W 25W 40W 60W 75W 100W	15W 25W 40W 60W 75W 100W	Ban of all clear GLS			
<b>Non Clear</b> 	Non clear GLS lamps to be replaced by CFLi (A)							
<b>Directional</b> 	15W 25W 40W 60W 75W 100W	Implementation measure on directional light sources to be decided by end 2009						
<b>Special</b> 	Special purpose lamps							

\*All lamps with Energy Class F&G banned starting Sept. 2009

## Consequences of EuP Directive: Halogen products

	Sept 2009*	Sept 2010	Sept 2011	Sept 2012	Sept 2013	Sept 2014	Sept 2015	Sept 2016
<b>Clear</b> 	<60lm 60lm 450lm 725lm >950lm	<60lm 60lm 450lm 725lm >950lm	<60lm 60lm 450lm 725lm >950lm	<60lm 60lm 450lm 725lm >950lm	Ban of all clear Halogen Class D&E			Ban of Class C
<b>Non Clear</b> 	Non clear HALOGEN lamps to be replaced by Energy Class A products, only LED equivalent at this time							
<b>Directional</b> 	15W 25W 40W 60W 75W 100W	Implementation measure on directional light sources to be decided by end 2009						
<b>Special</b> 	Special purpose lamps							

\*Except for G9/R7s = Energy Class C remains

Not affected by EuP Directive  
 Affected by EuP Directive  
 To be decided end of 2009  
 Affected if below Energy Class C

# Accelerated Capital Allowances

## What is the ACA?

The Accelerated Capital Allowance (ACA) is a tax incentive which aims to encourage companies to invest in energy saving technology. The ACA is based on the existing Capital Allowances tax structure (also referred to as Wear and Tear Allowance) for plant and machinery and is only applicable to eligible energy efficient equipment.

## How does the ACA work?

With the existing Capital Allowances tax structure, when money is spent on capital equipment companies can deduct the cost of this equipment from their profits proportionally over a period of 8 years, i.e. the annual taxable profit is only reduced by 1/8 of the total equipment cost.

With the new *Accelerated* Capital Allowance:

When money is spent on eligible energy efficient capital equipment, the company can deduct the full cost of this equipment from their profits in the year of purchase, i.e. the taxable profit in year one is reduced by the full cost of the equipment.

The ACA benefits you in year one by:

- Reducing your tax bill
- Increasing your cash flow
- Reducing your energy costs

## Where do I find the list of eligible equipment?

Equipment eligible for the ACA can be found on the specified products list on [www.sei.ie/aca](http://www.sei.ie/aca)

## ACA Equipment Categories

Categories	Technologies covered
<b>Motors and Drives</b>	Motors Variable Speed Drives
<b>Lighting</b>	Lighting Units Lighting Controls
<b>Building Energy Management Systems Information and Communications Technology (ICT)</b>	Building Energy Management Systems Enterprise Servers Enterprise Storage Equipment Precise Cooling Heat Rejection Centralised Direct Current Power Distribution Power Management Uninterruptible Power Supply
<b>Heating and Electricity Provision</b>	Co-generation Wind Turbines Hot Water Generation Localised Steam Generators Stationary Fuel Cell Power Systems Photovoltaic Systems Boiler Controls Condensate Recovery Systems Steam Systems
<b>Process and Heating, Ventilation and Air-conditioning (HVAC) Control Systems</b>	HVAC Zone Control HVAC Heat Recovery Pumps Hydraulic Power Recovery Turbine Blowers Fans
<b>Electric and Alternative Fuel Vehicles</b>	Alternative Energy Vehicle Conversions Electric Vehicles and Associated Charging Equipment



## Do you qualify for the ACA?

The ACA is available to companies that operate and pay corporation tax in Ireland.

## How do I claim the ACA?

Claiming the ACA is very simple as the standard annual tax return procedure is the method used. The following are some simple guideline steps:

- Decide upon required piece of equipment
- Ensure product is on the ACA specified list during relevant accounting period before purchasing
- Claim the ACA for the purchased equipment on the company's tax return form along with any other wear and tear allowances for machinery and plant

To find out if the equipment you bought, or plan to buy, is eligible for the ACA just go [www.sei.ie/aca](http://www.sei.ie/aca) where the up to date ACA specified list is maintained by Sustainable Energy Ireland (SEI).

For more detailed and definitive information on how to claim the ACA please contact The Irish Revenue Commissioners ([www.revenue.ie](http://www.revenue.ie)).

## ACA Example

Consider the example where a company has €100,000 profit at the end of their accounting period, on which they must pay 12.5 % corporation tax. The same company has during that period, purchased capital equipment that cost €20,000.

In the first year the equipment was purchased, the following scenarios can be compared:

1. Standard Capital Allowances applies for general equipment purchases.
2. ACA applies for eligible energy efficient equipment purchases.

Cost of purchased equipment = €20,000

	Without Capital Allowances	Standard Capital Allowances	ACA
Proportion of deductible Capital Equipment Costs	N/A	1/8 (12.5%)	100%
Deductible Capital Equipment costs	N/A	€2,500	€20,000
Taxable Profit: (minus deductions)	€100,000	€97,500	€80,000
Tax payable on profit @ 12.5%	€12,500	€12,188	€10,000
Tax saved with deductions	N/A	€312	€2,500

With the ACA the company has €2,187 extra cash to spend on eligible energy efficient equipment!

As a result of purchasing the more energy efficient equipment the company will also immediately begin to save on energy costs!

The information in this guide is taken from: Accelerated Capital Allowances, A guide to helping companies invest in energy efficient equipment. This information was produced by Sustainable Energy Ireland.

# DULUXSTAR®

## The Right compact fluorescent lamp

**STANDARD GLS INCANDESCENT**

25 W	▶	5 W
40 W	▶	8 W
60 W	▶	11 W
75 W	▶	14 W
75 W	▶	17 W
100 W	▶	21 W
120 W	▶	24 W
150 W	▶	30 W

**DULUXSTAR® STICK**

**STANDARD GLS INCANDESCENT**

25 W	▶	5 W
40 W	▶	7 W
50 W	▶	10 W

**DULUXSTAR® CLASSIC B**

**STANDARD GLS INCANDESCENT**

35 W	▶	7 W
40 W	▶	9 W
60 W	▶	11 W
100 W	▶	20 W

**DULUXSTAR® R50/R63**

**STANDARD GLS INCANDESCENT**

50 W	▶	10 W
75 W	▶	13 W

**DULUXSTAR® CLASSIC A**

**STANDARD GLS INCANDESCENT**

120 W	▶	20 W
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**DULUXSTAR® PAR 38**

\*Comparison made to the nearest incandescent wattage equivalent.

### PRODUCT BENEFITS:

- Up to **80%** energy saving
- Good quality energy saver for everyday applications
- Direct energy saving replacement for standard incandescent lamps
- Wide variety of shapes and wattages to choose from
- Long life of 10,000 h meaning fewer lamp replacements
- Energy Class A (meets the requirements of the EuP directive)
- New Colour 825 – First CFLi light colour with the warm appearance of standard GLS incandescent lamps
- Approx 20,000 switching cycles
- Environmentally friendly contains the smallest quantities of mercury (< 3 mg) on the market

### OSRAM DULUXSTAR®

- Retrofit “stick shape” electronic energy saving compact fluorescent lamp

Product Identification Code	W	V	Cap
OSRAM DULUXSTAR® 10,000 h	5	220-240	SES/E14
OSRAM DULUXSTAR® 10,000 h	5	220-240	BC/B22d
OSRAM DULUXSTAR® 10,000 h	5	220-240	ES/E27
OSRAM DULUXSTAR® 10,000 h	8	220-240	SES/E14
OSRAM DULUXSTAR® 10,000 h	8	220-240	ES/E27
OSRAM DULUXSTAR® 10,000 h	8	220-240	BC/B22d
OSRAM DULUXSTAR® 10,000 h	11	220-240	ES/E27
OSRAM DULUXSTAR® 10,000 h	11	220-240	BC/B22d
OSRAM DULUXSTAR® 10,000 h	14	220-240	ES/E27
OSRAM DULUXSTAR® 10,000 h	14	220-240	BC/B22d
OSRAM DULUXSTAR® 10,000 h	17	220-240	ES/E27
OSRAM DULUXSTAR® 10,000 h	17	220-240	BC/B22d
OSRAM DULUXSTAR® 10,000 h	21	220-240	ES/E27
OSRAM DULUXSTAR® 10,000 h	21	220-240	BC/B22d
OSRAM DULUXSTAR® 10,000 h	24	220-240	ES/E27
OSRAM DULUXSTAR® 10,000 h	24	220-240	BC/B22d
OSRAM DULUXSTAR® 10,000 h	30	220-240	ES/E27

Also available in colour 840 (Cool White) and on request in colour 865 (Daylight) – for further information contact OSRAM.

### OSRAM DULUXSTAR® CLASSIC/R50/R63/PAR 38

- Retrofit “look-a-like” electronic energy saving compact fluorescent lamp

Product Description	W	V	Cap
OSRAM DULUXSTAR® MINI CANDLE 10,000 h	5	220-240	SES/E14
OSRAM DULUXSTAR® MINI CANDLE 10,000 h	5	220-240	ES/E27
OSRAM DULUXSTAR® MINI CANDLE 10,000 h	7	220-240	SES/E14
OSRAM DULUXSTAR® MINI CANDLE 10,000 h	7	220-240	ES/E27
OSRAM DULUXSTAR® MINI CANDLE 10,000 h	11	220-240	SES/E14
OSRAM DULUXSTAR® MINI CANDLE 10,000 h	11	220-240	ES/E27
OSRAM DULUXSTAR® CLASSIC A 10,000 h	10	220-240	ES/E27
OSRAM DULUXSTAR® CLASSIC A 10,000 h	10	220-240	BC/B22d
OSRAM DULUXSTAR® CLASSIC A 10,000 h	20	220-240	ES/E27
OSRAM DULUXSTAR® CLASSIC A 10,000 h	20	220-240	BC/B22d
OSRAM DULUXSTAR® R50 10,000 h	7	220-240	SES/E14
OSRAM DULUXSTAR® R50 10,000 h	7	220-240	GU10
OSRAM DULUXSTAR® R50 10,000 h	9	220-240	SES/E14
OSRAM DULUXSTAR® R50 10,000 h	9	220-240	GU10
OSRAM DULUXSTAR® R63 10,000 h	11	220-240	ES/E27
OSRAM DULUXSTAR® R63 10,000 h	13	220-240	ES/E27
OSRAM DULUXSTAR® PAR 38 10,000 h	20	220-240	ES/E27

\*Available September 2009 – for further information contact OSRAM.



# OSRAM DULUX® INTELLIGENT LONGLIFE

The Right Longlife retrofit compact fluorescent lamp

## OSRAM DULUX® INTELLIGENT LONGLIFE

- Longlife stick shape retrofit compact fluorescent
- Up to 80% energy saving
- Extra long life of 20,000 h meaning fewer lamp replacements
- Meets the highest demands in terms of frequent switching

### PRODUCT BENEFITS:

- Energy Class A (meets the requirements of the EuP directive)
- New Colour 825 – First CFLi light colour with the warm appearance of standard GLS incandescent lamps
- 500,000 x switching cycle meets the highest demands in terms of frequent switching
- QUICKLIGHT technology improves run up time by > 50%
- Environmentally friendly contains the smallest quantities of mercury (< 3 mg) on the market



\*Comparison made to the nearest incandescent wattage equivalent.



W	V	Cap
5	220/240	ES/E27
7	220/240	ES/E27
11	220/240	ES/E27
14	220/240	ES/E27
18	220/240	ES/E27
22	220/240	ES/E27
30	220/240	ES/E27

# OSRAM DULUX® INTELLIGENT DIM

The Right dimmable compact fluorescent lamp

## OSRAM DULUX® INTELLIGENT DIM

- Stepless dimming from 100% to 7% light output using a standard household rotary dimmer switch
- Unlimited switching
- Extra long life of 20,000 h

### PRODUCT BENEFITS:

- Up to 80% energy saving
- Direct replacement for incandescent lamps
- Energy Class A (meets the requirements of the EuP directive)
- New Colour 825 – First CFLi light colour with the warm appearance of standard GLS incandescent lamps
- QUICKLIGHT technology improves run up time by > 50%
- Environmentally friendly contains the smallest quantities of mercury (< 3 mg) on the market



\*Comparison made to the nearest incandescent wattage equivalent.



W	V	Cap
18	220-240	BC/B22d
18	220-240	ES/E27
15	220-240	ES/E27
15	220-240	ES/E27
11	220-240	ES/E27
20	220-240	ES/E27

# DULUXSTAR® MINI BALL, MINI GLOBE & GLOBE

The Right retrofit compact fluorescent lamp

## OSRAM DULUXSTAR® MINI BALL, MINI GLOBE & GLOBE

- Retrofit mini ball, mini globe & globe energy saving compact fluorescent lamps
- Direct replacement for GLS lamps
- Average rated life: 10,000 h
- **IDEAL FOR:** replacing uneconomic incandescent lamps

### PRODUCT BENEFITS:

- **80%** energy saving compared to classic incandescent lamps
- Energy Class A (meets the requirements of the EuP directive)
- New Colour 825 – First CFLi light colour with the warm appearance of standard GLS incandescent lamps
- Approx 20,000 switching cycles
- Environmentally friendly contain the smallest quantities of mercury (< 3 mg) on the market



\*Comparison made to the nearest incandescent wattage equivalent.

W	V	Cap
5	220-240	SES/E14
7	220-240	SES/E14
11	220-240	ES/E27
11	220-240	BC/B22d
15	220-240	ES/E27
15	220-240	BC/B22d
20	220-240	ES/E27
20	220-240	BC/B22d
5	220-240	ES/E27
5	220-240	SES/E14
7	220-240	ES/E27
7	220-240	SES/E14
11	220-240	ES/E27
15	220-240	ES/E27
20	220-240	ES/E27
14	220-240	ES/E27
18	220-240	ES/E27

# DULUXSTAR® MINI TWIST

The Right twisted retrofit compact fluorescent lamp

## DULUXSTAR® MINI TWIST

- Retrofit twisted compact fluorescent energy saver
- Direct replacement for GLS lamps
- Average rated life: 8000 h
- **IDEAL FOR:** decorative alternative to standard incandescent lamps

### PRODUCT BENEFITS:

- Up to **80%** energy saving
- NEW compact T3 Mini Twist version 24% shorter than DULUXSTAR® stick version
- Energy Class A (meets the requirements of the EuP directive)
- New Colour 825 – First CFLi light colour with the warm appearance of standard GLS incandescent lamps
- Environmentally friendly contains the smallest quantities of mercury (< 3 mg) on the market



\*Comparison made to the nearest incandescent wattage equivalent.



W	V	Cap
5	220-240	SES/E14
5	220-240	ES/E27
8	220-240	SES/E14
8	220-240	ES/E27
11	220-240	SES/E14
11	220-240	ES/E27
13	220-240	ES/E27
13	220-240	BC/B22d
18	220-240	ES/E27
18	220-240	BC/B22d
23	220-240	ES/E27
23	220-240	BC/B22d



Classic	Order Code & Base	Replacing
9W	940066 (ww) E27 base	45w Incandescent
9W	940059 (ww) E14 base	45w Incandescent
9W	192229 (ww) B22 base	45w Incandescent
11W	940431 (ww) E27 base	60w Incandescent
11W	940486 (ww) B22 base	60w Incandescent
15W	115086 (ww) E27 base	75w Incandescent
15W	115031 (ww) B22 base	75w Incandescent



Candle	Order Code & Base	Replacing
7W	108022 (ww) E27 base	35w Incandescent
7W	940233 (ww) E14 base	35w Incandescent
7W	941650 (ww) B15 base	35w Incandescent
7W	138029 (ww) B22 base	35w Incandescent
9W	119028 (ww) E14 base	45w Incandescent
9W	103161 (ww) B15 base	45w Incandescent
9W	139026 (ww) B22 base	45w Incandescent



GU10	Order Code & Base	Replacing
9W	141326 (ww) GU10 base	40w Halogen
9W	165445 (cw) GU10 base	40w Halogen
11W	141432 (ww) GU10 base	50w Halogen
11W	141449 (cw) GU10 base	50w Halogen
14W	141627 (ww) GU10 base	70w Halogen
14W	141641 (cw) GU10 base	70w Halogen



Reflector	Order Code & Base	Replacing
7W	165322 (ww) E14 base	35w R50 Incandescent
11W	156297 (ww) E14 base	60w R50 Incandescent
11W	168323 (ww) E27 base	60w R63 Incandescent
15W	169320 (ww) E27 base	80w R80 Incandescent



Par 30/38	Order Code & Base	Replacing
15W	163120 (ww) E27 base	80w PAR 30H Incandescent
15W	163121 (ww) E27 base	80w PAR 30H Incandescent
15W	163444 (cw) E27 base	80w PAR 30H Incandescent
20W	162024 (ww) E27 base	120w PAR 30 Incandescent

# Elegance meets efficiency

**PHILIPS**  
sense and simplicity

**Philips MASTER LED lamps** - Combining quality light with low energy and maintenance costs has never been so easy

## Be inspired by a simple and economical bright-light solution

With Philips' cutting-edge MASTER LED retrofit solution, it is now possible to reduce energy consumption and maintenance costs without compromising on light quality and ambience. As well as being ultra-easy to install, MASTER LED offers low cost of ownership, with a payback period of less than a year in professional applications such as hotels, bars, shops and offices. This innovative lamp emits no heat, UV or infrared in the light beam. And it contains no mercury, making it fully compliant with all European environmental legislation – a truly sustainable solution!



[asimpleswitch.com](http://asimpleswitch.com)

- **Energy saving**

Up to 80% energy saving compared to standard dichroic low-wattage halogen lamps and incandescent lamps

- **Low maintenance costs**

Long life – 45,000 hours; up to 45 times longer than incandescent, up to 25 times longer than traditional halogen and up to 10 times longer than compact fluorescent lamps

- **High quality light**

Clear cool or comfortable warm, dimmable light. Less heat, UV or infrared in the beam

- **Easy installation**

The MASTER LED range is compatible with existing E27, MR16 and GU10 lamp fittings

- **Short payback period**

In 18 to 24-hours per day applications, the payback for MASTER LED is less than one year

- **Environmental friendly**

No mercury and less waste: Small carbon footprint

**For more information,**

visit [www.philips.com/masterled](http://www.philips.com/masterled)



### MASTER LED & the GLS Ban

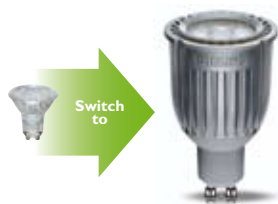
Since September 2009 the EU have begun to phase-out the use of inefficient GLS lamps. Philips already offers an extended LED retrofit portfolio with high quality solutions. MASTER LED is the best alternative to incandescent lamps with energy savings up to 80%.

**MASTER LED MR16**



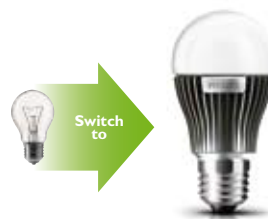
Replacement for 20W standard dichroic halogen 12V lamps

**MASTER LED GU10**



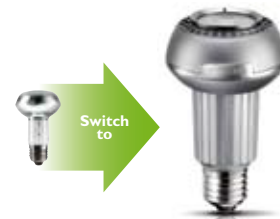
Replacement for 35W standard dichroic halogen 230V lamps and 9W compact fluorescent reflector lamps

**MASTER LED E27 A55**



Replacement for max 40W incandescent lamps

**MASTER LED E27 NR63**



Replacement for max 40W incandescent and max 9W compact fluorescent spot lamps

### 7W LED-based lamps with GU10 and E27

- ✓ Up to 80% energy savings compared with equivalent halogen or GLS lamps
- ✓ Ultra-low power consumption is ideal for 24/7 lighting applications
- ✓ Payback time typically only around 1 year at 24/7 lighting applications
- ✓ No compromise in light quality
- ✓ Reflector types have high-efficacy beam with clearly defined beam spread
- ✓ Low maintenance through long lifetime and low failure rate
- ✓ Cool beam, no UV or IR radiation
- ✓ Dimmable

### 4W MASTERLED for Low Voltage sockets

- ✓ Retrofit GU5.3 Socket to majority of transformers
- ✓ Up to 20W replacement
- ✓ 3 Rebel LEDs
- ✓ 4W
- ✓ 2700K 240 Cd
- ✓ 3000K 285 Cd
- ✓ Lifetime 45000 hrs
- ✓ 24D beam angle

Product	Dimmable	Colour temp. (K)	Colour rendering (Ra)	Lumen output (Lm)	Beam Intensity (Cd)	Beam angle
MASTER LED 7W A55 230-240V	•	4200	70	230	-	-
MASTER LED 7W A55 230-240V	•	3000	85	180	-	-
MASTER LED 7W A55 230-240V <sup>1</sup>	•	2700	85	180	-	-
MASTER LED 7W NR63 230-240V	•	4200	85	-	800	25
MASTER LED 7W NR63 230-240V <sup>1</sup>	•	3000/2700 <sup>2</sup>	70	-	575	25
MASTER LED 7W NR63 230-240V	•	4200	85	-	320	40
MASTER LED 7W NR63 230-240V <sup>1</sup>	•	3000/2700 <sup>2</sup>	85	-	230	40
MASTER LED 7W GU10 230-240V	•	4200	70	-	800	25
MASTER LED 7W GU10 230-240V	•	3000	85	-	575	25
MASTER LED 7W GU10 230-240V <sup>1</sup>	•	2700	85	-	575	25
MASTER LED 7W GU10 230-240V	•	4200	70	-	320	40
MASTER LED 7W GU10 230-240V	•	3000	85	-	230	40
MASTER LED 7W GU10 230-240V <sup>1</sup>	•	2700	85	-	230	40
MASTER LED 4W GU5.3 MR16 12V	• <sup>3</sup>	3000	85	-	550	24
MASTER LED 4W GU5.3 MR16 12V	• <sup>3</sup>	2700	90	-	550	24

# GE High Output LED Retrofit lamps

GE's innovative high output LED retrofit lamp solutions offer substantial opportunities to reduce energy consumption and maintenance costs in applications where directional, high quality light is required.

Offering low cost of ownership, and with paybacks of less than 1 year in professional applications, these lamps are TRUE retrofits that require no compromise to achieve dramatic through-life savings:

## LED 4 Watt GU10 Lamps

### Energy saving

- 12% higher candela than 20W GU10 halogen lamps
- Same 36° beam angle as 20W GU10 halogen lamps
- Consumes 80% less energy than 20W halogen GU10

### Low maintenance costs

- Long life – 15,000 hours to 70% lumen output

### High quality light

- Warm white 3100K with CRI >80

### Easy installation

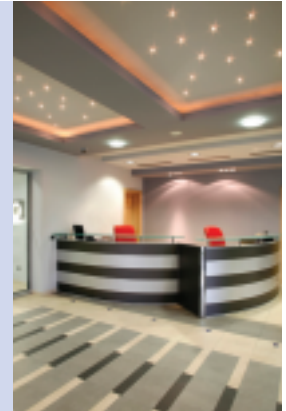
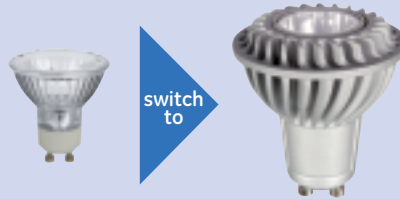
- Same size as halogen GU10 lamps
- Uses industry standard GU10 base

### Main applications

- Downlighting and accent lighting in domestic and commercial (hotel, retail, leisure etc) applications

### Sustainable solution

- No mercury
- 80% energy saving
- No UV, IR or heat in



## LED 4 Watt R50 Lamps

### Energy saving

- Similar candela to 40W R50 incandescent lamps
- Same 36° beam angle as 40W incandescent R50 lamps
- Consumes 90% less energy than 40W incandescent R50

### Low maintenance costs

- Long life – 15,000 hours to 70% lumen output

### High quality light

- Warm white 3100K with CRI >80

### Easy installation

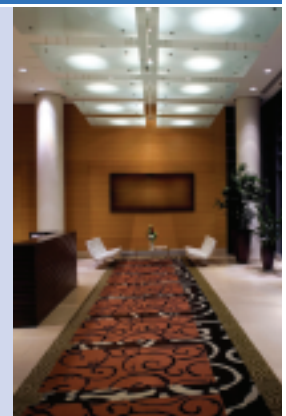
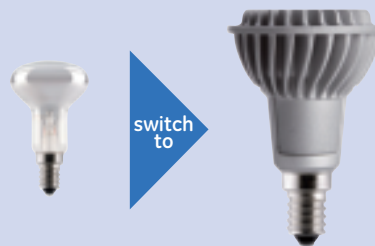
- Same size as incandescent R50 lamps
- Uses industry standard E14 base

### Main applications

- Downlighting and accent lighting in domestic and commercial (hotel, retail, leisure etc) applications

### Sustainable solution

- No mercury
- 90% energy saving
- No UV, IR or heat in beam
- High power factor



## LED 7 Watt R63 Lamps

### Energy saving

- Similar candela to 60W R63 incandescent lamps (36° version)
- 20% more candela than 50W halogen PAR20 lamps (20° version)
- Similar beam angle to incandescent R63 lamps (36° version)
- Consumes almost 90% less energy than 60W incandescent R63 and 86% less energy than 50W halogen PAR20

### Low maintenance costs

- Long life – 20,000 hours to 70% lumen output

### High quality light

- Warm white 2700K and 3000K with CRI >80

### Easy installation

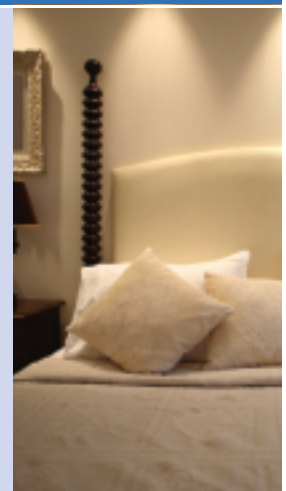
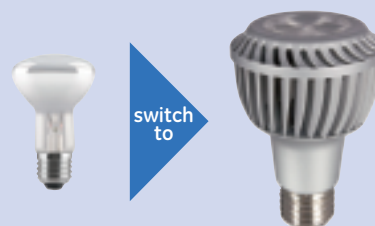
- Same size as incandescent R63 lamps
- Uses industry standard E27 base

### Main applications

- Downlighting and accent lighting in domestic and commercial (hotel, retail, leisure etc) applications

### Sustainable solution

- No mercury
- Up to 90% energy saving
- No UV, IR or heat in beam
- High power factor



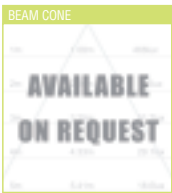


**NEW AU-GUF3010/30**



PHOTOMETRIC DATA AVAILABLE

**30Lm/W**  
**50mm Ø**



**FEATURES**

- Registered Community Design 000973912-0001
- 30 Lumens per Watt output
- Replacement lamp for GU10 halogen lamp
- Lasts 10 times longer than an equivalent incandescent lamp (10,000 hrs)
- Suitable for use in Fire Rated Downlights
- Maximum ambient temperature (Ta) 65 deg C
- Non-Dimmable



Cat. No.	Base	Watts	Life[hrs]	Colour Temp	Dia [Ø]	Lumens
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**NON - DIMMABLE**

<b>NEW</b> AU-GUF3010/30	GU10	10W	10,000	3000K	50mm	300
<b>NEW</b> AU-GUF3010/40	GU10	10W	10,000	4000K	50mm	300
<b>NEW</b> AU-GUF3010/64	GU10	10W	10,000	6400K	50mm	300

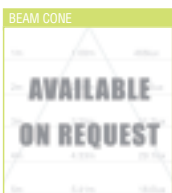
**DIMMABLE**

<b>NEW</b> AU-DGUF3010/30	GU10	10W	10,000	3000K	50mm	300
<b>NEW</b> AU-DGUF3010/40	GU10	10W	10,000	4000K	50mm	300
<b>NEW</b> AU-DGUF3010/64	GU10	10W	10,000	6400K	50mm	300

**NEW AU-MRF1611/30**



**25Lm/W**  
**50mm Ø**



**FEATURES**

- Registered Community Design Pending
- Direct replacement for MR16 halogen lamp
- May be used with most electronic and magnetic transformers
- Lasts 10 times longer than an equivalent tungsten halogen lamp (10,000 hrs)
- Suitable for use in Fire Rated Downlights
- Maximum ambient temperature (Ta) 65 deg C
- Non-dimmable



Cat. No.	Base	Watts	Life[hrs]	Colour Temp	Dia [Ø]	Lumens
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**NON-DIMMABLE**

<b>NEW</b> AU-MRF1609/30	GU5.3	9W	10,000	3000K	50mm	225
<b>NEW</b> AU-MRF1609/40	GU5.3	9W	10,000	4000K	50mm	225
<b>NEW</b> AU-MRF1611/30	GU5.3	11W	10,000	3000K	50mm	275
<b>NEW</b> AU-MRF1611/40	GU5.3	11W	10,000	4000K	50mm	275



50mm

(H) 9W 66mm  
(H) 11W 81mm



# Better Brighter Bulbs

The days of the energy saving bulb as a buzzing, annoying tube are over and gone. Ecopal bulbs are compact, high end and ready to do the job of your traditional incandescent bulbs, using a fraction of the electricity.

If you've ever touched a traditional bulb when it was in use you will know that what we call 'lights' are actually tiny heaters that give us some light while wasting a lot of energy as heat. Ecopal energy saving light bulbs just produce light, and so use less power, lowering electricity bills and producing far less global warming CO2 pollution.



<b>LED Super Bright</b>	<b>2W</b>
Equivalent	<b>50w</b>
Fitting	GU10
Size MM	50x60



<b>Micro Spiral</b>	<b>5w</b>	<b>9w</b>
Equivalent	<b>25w</b>	<b>45w</b>
Fitting	B15/B22	B22/E14
	E14/E27	
Size MM	40x95	40x95



<b>Umbrella</b>	<b>20W</b>
Equivalent	<b>100w</b>
Fitting	B22/E27
Size MM	90x150



<b>3U</b>	<b>11W</b>
Equivalent	<b>55w</b>
Fitting	B22/E27
Size MM	30x120

## MR16 50mm LED



### FEATURES

- 1 & 3W High power MR16 Cree LED lamps
- Aluminium alloy heatsink for heat dissipation
- 20° lens
- Recommended for use with constant voltage LED driver for maximum lumen output & LED life. May also be used with Aurora electronic transformers
- Available in five colours, suitable for accent lighting
- Non-dimmable

BEAM CONE		
1m	0.37m	24.1lx
2m	0.74m	60.3lx
3m	1.11m	26.8lx
4m	1.48m	15.1lx
5m	1.85m	9.3lx

Cat. No.	Price [£]	Colour Temp	Base	Watts	Lumens	Life[hrs]
<b>MR16 50mm - 1 Watt</b>						
AU-LED/MR16LX1/CW	36.50	6000°K	GU5.3	1.5W	31	30,000
AU-LED/MR16LX1/WW	36.50	3300°K	GU5.3	1.5W	31	30,000
AU-LED/MR16LX1/BLU	36.50	N/A	GU5.3	1.5W	6	30,000
AU-LED/MR16LX1/GRN	36.50	N/A	GU5.3	1.5W	45	30,000
AU-LED/MR16LX1/RD	36.50	N/A	GU5.3	1W	28	30,000



Available in Cool White, Warm White, Blue, Green or Red LED'S



## MR16 50mm LED



Cat. No.	Price [£]	Colour Temp	Base	Watts	Lumens	Life[hrs]
<b>MR16 50mm - 3 Watt</b>						
AU-LED/MR16LX3/CW	48.33	6000°K	GU5.3	3W	61	30,000
AU-LED/MR16LX3/WW	48.33	3300°K	GU5.3	3W	61	30,000
AU-LED/MR16LX3/BLU	48.33	N/A	GU5.3	3W	14	30,000
AU-LED/MR16LX3/GRN	48.33	N/A	GU5.3	3W	63	30,000
AU-LED/MR16LX3/RD	48.33	N/A	GU5.3	3W	65	30,000

BEAM CONE		
1m	0.29m	99.8lx
2m	0.58m	99.8lx
3m	0.87m	44.2lx
4m	1.16m	24.9lx
5m	1.45m	15.9lx

Available in Cool White, Warm White, Blue, Green or Red LED'S



SUITABLE FOR DIRECT REPLACEMENT OF MR16 HALOGEN LAMPS WHEN USED WITH 60VA ELECTRONIC TRANSFORMERS

N.B. IF USED WITH AN ELECTRONIC TRANSFORMER, ONLY ONE LED LAMP CAN BE USED PER TRANSFORMER. LIGHT OUTPUT & LAMP LIFE MAY BE REDUCED IF USED WITH ELECTRONIC TRANSFORMERS RATHER THAN A CONSTANT VOLTAGE LED DRIVER

SINGLE 3W LED CHIP WITH NARROW 20° BEAM ANGLE



## GU10 50mm LED



BEAM CONE		
1m	0,33m	294lux
2m	0,66m	96,2lux
3m	0,99m	42,2lux
4m	1,32m	24,2lux
5m	1,65m	16,8lux

### FEATURES

- 1 & 3W High power GU10 Cree LED lamps
- Aluminium alloy heatsink for heat dissipation
- 20° lens
- Available in five colours, suitable for accent lighting
- Non-dimmable

Cat. No.	Price [€]	Colour Temp	Base	Watts	Lumens	Life[hrs]
<b>GU10 50mm - 1 Watt</b>						
AU-LED/GU10LX1/CW	39.83	6000°K	GU10	1W	31	30,000
AU-LED/GU10LX1/WW	39.83	3300°K	GU10	1W	25	30,000
AU-LED/GU10LX1/BLU	39.83	N/A	GU10	1W	6	30,000
AU-LED/GU10LX1/GRN	39.83	N/A	GU10	1W	49	30,000
AU-LED/GU10LX1/RD	39.83	N/A	GU10	1W	27	30,000

## GU10 50mm LED



BEAM CONE		
1m	0,33m	398lux
2m	0,66m	99lux
3m	0,99m	44,2lux
4m	1,32m	24,2lux
5m	1,65m	15,2lux

Cat. No.	Price [€]	Colour Temp	Base	Watts	Lumens	Life[hrs]
<b>GU10 50mm - 3 Watt</b>						
AU-LED/GU10LX3/CW	49.83	6000°K	GU10	3W	65	30,000
AU-LED/GU10LX3/WW	49.83	3300°K	GU10	3W	65	30,000
AU-LED/GU10LX3/BLU	49.83	N/A	GU10	3W	12	30,000
AU-LED/GU10LX3/GRN	49.83	N/A	GU10	3W	69	30,000
AU-LED/GU10LX3/RD	49.83	N/A	GU10	3W	56	30,000

Available in Cool White, Warm White, Blue, Green or Red LED'S



## GU10 50mm LED



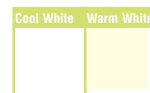
BEAM CONE		
1m	0,33m	443lux
2m	0,66m	118lux
3m	0,99m	49,2lux
4m	1,32m	27,2lux
5m	1,65m	17,2lux

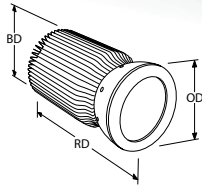
### FEATURES

- 3 x 1W GU10 Cree LED lamp
- Aluminium heatsink for heat dissipation
- 20° lens
- Non-dimmable

Cat. No.	Price [€]	Colour Temp	Base	Watts	Lumens	Life[hrs]
<b>GU10 50mm 3 x 1W</b>						
AU-LED/GU103/CW	75.00	6000°K	GU10	3W	90	30,000
AU-LED/GU103/WW	75.00	3300°K	GU10	3W	90	30,000

Available in Cool White, Warm White LED'S





(BD) 46mm Base Ø  
(OD) 50mm Overall Ø  
(RD) 55mm Recess Ø



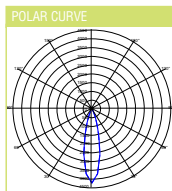
AU-MOD533 SHOWN  
IN AU-DLL316SS

**NEW AU-MOD533 38° Beam**

700mA 3 x 3W 50mm MR16 LED Module



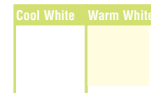
BEAM ANGLE		
1m	0.46m	870lux
2m	0.92m	216lux
3m	1.38m	99lux
4m	1.84m	54.1lux
5m	2.32m	34.6lux



### FEATURES

- 3 x 3 Watt LED in a 50mm housing allows module to be used in an MR16 luminaire
- Integrated aluminium heat-sink for maximum heat dissipation
- Beam angle 38°
- Requires 700mA Constant Current LED driver
- Dimmable with AU-LEDD48CC driver and AU-DSPLED dimmer unit

\*Add suffix **CW** or **WW** to catalogue number for Cool White or Warm White LED'S



9W Driver	48W Dimmable
AU-LED709CC	AU-LEDD48CC

Cat.No.	Total [W]	No.LED's	Beam	Input	No. of fittings per driver	Overall [Ø]
AU-MOD533*	3 x 3W	3	38°	700mA	1 4	50mm



# HALOGEN ES CLASSIC B / BW

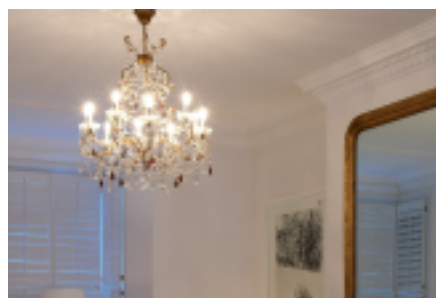
The Right energy saving candle lamp

## HALOGEN ENERGY SAVER CLASSIC B

- Energy saving mains voltage candle shape lamp
- **IDEAL FOR:** Energy saving alternative to standard GLS incandescent types in decorative fittings such as chandeliers

### PRODUCT BENEFITS:

- **30%** energy saving compared to standard GLS incandescent types
- Cost effective halogen alternative for direct replacement of classic candle lamps
- Twice the life of an ordinary light bulb
- Brilliant white halogen light
- No transformer required
- UV FILTER
- Fully dimmable



2 x 1000 h		25 W	▶	18 W		ENERGY SAVER 2000 h
		40 W	▶	28 W		
		60 W	▶	42 W		

Product Description	W	V	Cap	Finish/Beam Angle
HALOGEN ENERGY SAVER CLASSIC B	18	240	BC/B22d	Clear
HALOGEN ENERGY SAVER CLASSIC B	18	240	SES/E14	Clear
HALOGEN ENERGY SAVER CLASSIC B	28	240	BC/B22d	Clear
HALOGEN ENERGY SAVER CLASSIC B	28	240	SES/E14	Clear
HALOGEN ENERGY SAVER CLASSIC B	42	240	BC/B22d	Clear
HALOGEN ENERGY SAVER CLASSIC B	42	240	SES/E14	Clear

# HALOPIN® ENERGY SAVER

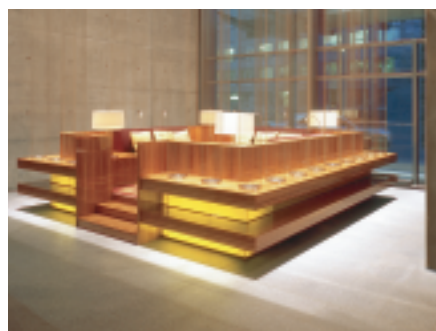
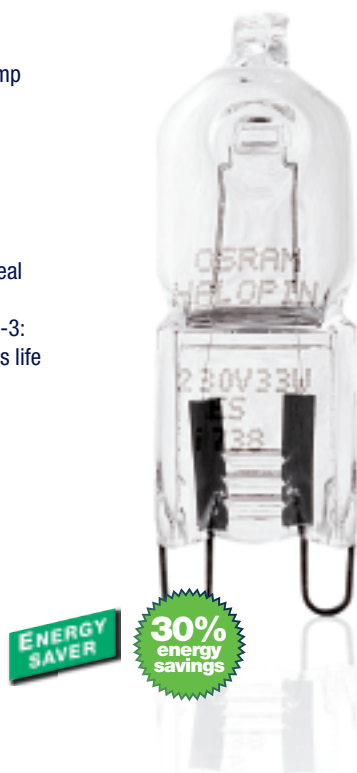
The Right halogen capsule lamp

## HALOPIN® ENERGY SAVER

- Compact energy saving G9 mains voltage lamp
- **IDEAL FOR:** modern compact luminaires

### PRODUCT BENEFITS:

- Uses up to **20%** less energy compared to standard HALOPIN®
- Extremely compact dimensions making it ideal even for the smallest light fittings
- Meets the safety requirements of IEC 60432-3: the lamp shuts down reliably at the end of its life
- Approved for use in open luminaires to IEC 60598-1
- No transformer required
- UV FILTER
- Fully dimmable



STANDARD HALOPIN®	25 W	▶	20 W	HALOPIN® ENERGY SAVER
	40 W	▶	33 W	
	60 W	▶	48 W	
	75 W	▶	60 W	

Product Description	W	V	Cap	Finish/Beam Angle
HALOPIN® ENERGY SAVER	20	240	G9	Clear
HALOPIN® ENERGY SAVER	33	240	G9	Clear
HALOPIN® ENERGY SAVER	48	240	G9	Clear
HALOPIN® ENERGY SAVER	60	240	G9	Clear

# HALOLINE® ENERGY SAVER

The Right linear halogen lamp

## HALOLINE® ENERGY SAVER

- Energy saving mains voltage linear halogen lamp
- **IDEAL FOR:** uplighters, floodlights and security lighting

### PRODUCT BENEFITS:

- Up to **20%** energy saving compared to standard HALOLINE®
- Direct energy saving replacement for standard double ended linear halogen lamps
- Brilliant white halogen light
- Universal burning position
- No transformer required
- Fully dimmable
- EuP compliant: Energy label C

STANDARD LINEAR HALOGEN	60 W	48 W	HALOLINE® ENERGY SAVER
	100 W	80 W	
	150 W	120 W	
	200 W	160 W	
	300 W	230 W	
	500 W	400 W	



Product Type	Product Description	W	V	Cap	Finish/Beam Angle
64690 ES	HALOLINE® ENERGY SAVER	80	240	R7s	Clear
64695 ES	HALOLINE® ENERGY SAVER	120	240	R7s	Clear
64701 ES	HALOLINE® ENERGY SAVER	230	240	R7s	Clear
64702 ES	HALOLINE® ENERGY SAVER	400	240	R7s	Clear

# HALOGEN ENERGY SAVER SPOT

The Right halogen spot reflector

## HALOGEN ENERGY SAVER SPOT

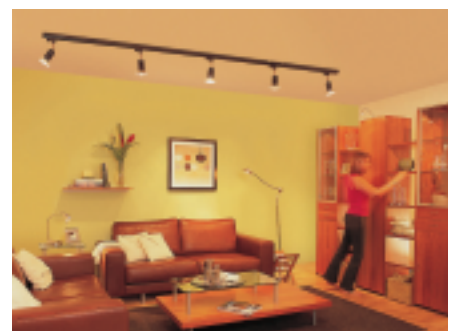
- Energy saving mains voltage reflector shape lamps
- R50 and R63 shapes
- **IDEAL FOR:** direct: 1:1 energy saving alternative to standard GLS incandescent reflector lamps

### PRODUCT BENEFITS:

- **30%** energy saving compared to standard GLS incandescent types
- Cost effective energy saving halogen alternative for 1:1 replacement of conventional spotlights
- Twice the life of a standard spotlight
- No transformer required
- UV FILTER
- Fully dimmable

2 x 1000h	STANDARD GLS SPOTLIGHT	40 W	28 W	HALOGEN ENERGY SAVER SPOT R50
		60 W	42 W	HALOGEN ENERGY SAVER SPOT R63

STANDARD GLS SPOTLIGHT	40 W	28 W	HALOGEN ENERGY SAVER SPOT R50
	60 W	42 W	HALOGEN ENERGY SAVER SPOT R63



Product Type	Product Description	W	V	Cap	Finish/Beam Angle
64545 R50 ES	HALOGEN ENERGY SAVER SPOT R50	28	240	SES/E14	30°
64545 R63 ES	HALOGEN ENERGY SAVER SPOT R63	42	240	ES/E27	30°

# HALOSTAR® ENERGY SAVER

The Right low voltage capsule lamp

## HALOSTAR® ENERGY SAVER

- Energy saving low voltage capsule lamp
- New G4 base - the smallest HALOSTAR® energy saver
- **IDEAL FOR:** open luminaires and decorative lighting applications

### PRODUCT BENEFITS:

- 1:1 energy saving replacement for standard capsule lamps
- Up to **60%** cost savings and **30%** energy saving compared to standard capsule lamps
- Long average life 4000 h (4 years)
- Approved for use in open luminaires to IEC 60598-1
- Axial filament for optimum directional light
- UV FILTER
- Fully dimmable



OSRAM System + Guarantee 1 year on the lamp and 5 years on HALOTRONIC® ECG when lamp and ECG used together. For more information visit [www.osram.com/system-guarantee](http://www.osram.com/system-guarantee)

2 x 2000 h		STANDARD CAPSULE LAMP	20 W	14 W		HALOSTAR® ES
			35 W	25 W		
			50 W	35 W		
			75 W	50 W		
			90 W	65 W		

Product Type	Product Description	W	V	Cap
64427 ES	HALOSTAR® ENERGY SAVER	14	12	G4
64429 ES	HALOSTAR® ENERGY SAVER	25	12	GY6.35
64432 ES	HALOSTAR® ENERGY SAVER	35	12	GY6.35
64440 ES	HALOSTAR® ENERGY SAVER	50	12	GY6.35
64447 ES	HALOSTAR® ENERGY SAVER	65	12	GY6.35

# HALOSPOT® 111 ENERGY SAVER

The Right aluminium reflector lamp

## HALOSPOT® 111 ENERGY SAVER

- Energy saving low voltage aluminium reflector lamp
- 111mm diameter
- **IDEAL FOR:** commercial applications such as shop, hotel, restaurant and office lighting

### PRODUCT BENEFITS:

- 1:1 energy saving replacement for standard 111mm reflector lamps
- Up to **48%** cost savings and **30%** energy saving compared to standard 111mm reflector lamps
- Optimum illumination and reduced scatter
- Cap for reduced glare and ease of handling
- Approved for use in open luminaires to IEC 60598-1
- UV FILTER
- Fully dimmable



OSRAM System + Guarantee 1 year on the lamp and 5 years on HALOTRONIC® ECG when lamp and ECG used together. For more information visit [www.osram.com/system-guarantee](http://www.osram.com/system-guarantee)



STANDARD 111 REFLECTOR	50 W	35 W		HALOSPOT® 111 ES
	75 W	50 W		
	100 W	65 W		

Product Type	Product Description	W	V	Cap	Finish/Beam Angle
48832 ES SP	HALOSPOT® 111 ENERGY SAVER	35	12	G53	Spot 8°
48832 ES FL	HALOSPOT® 111 ENERGY SAVER	35	12	G53	Flood 24°
48835 ES SP	HALOSPOT® 111 ENERGY SAVER	50	12	G53	Spot 8°
48835 ES FL	HALOSPOT® 111 ENERGY SAVER	50	12	G53	Flood 24°
48835 ES WFL	HALOSPOT® 111 ENERGY SAVER	50	12	G53	Wide flood 45°
48837 ES SP	HALOSPOT® 111 ENERGY SAVER	65	12	G53	Spot 8°
48837 ES FL	HALOSPOT® 111 ENERGY SAVER	65	12	G53	Flood 24°
48837 ES WFL	HALOSPOT® 111 ENERGY SAVER	65	12	G53	Wide flood 45°



# Upgrade to T5 Watt-Miser™

## Additional energy savings without any loss of lighting performance

GE already offers a comprehensive range of High Efficiency and High Output T5 tubes, but has taken the next step with the introduction of Watt-Miser™. These use 5% less energy than other T5s in the range, with the same lumen output. Moreover, they are 25% more efficient than T8 Polylux types. If the total system efficiency is taken into account then an energy saving as high as 45% can be achieved compared to systems using standard T8 tubes. This will have a big impact on reducing electricity expenses, which can account for over 90% of total lighting costs.



### Applications

Ideal for applications with high energy costs:

- Offices
- Schools, colleges, public buildings
- Warehousing
- Industry
- Hypermarkets and supermarkets

### Key benefits

- 5% extra energy saving with existing fittings and control gear
- Reduced CO<sub>2</sub> and other greenhouse gas emissions
- Energy saving without loss of light output
- Excellent lumen maintenance
- Low mercury content
- ROHS compliant and contains recyclable components

### Through Life Savings per lamp for a life of 25,000 hours and energy costs of € 0.167/kWh

	24W	49W	54W	80W
T5 power at 35°C (W/lamp)	22.5	49.3	53.8	80.0
T5 Watt-Miser™ power at 35°C (W/lamp)	21.4	46.8	51.1	76.0
T5 Energy through life (kWh)	563	1233	1345	2000
T5 Watt-Miser™ energy through life (kWh)	534	1170	1278	1900
Through life energy savings (kWh)	28	63	68	100
Through life energy savings (€)	4.68	10.52	11.36	16.70
CO <sub>2</sub> saved over life of tube (kg)	10.4	23.1	25.0	37.0

Energy costs are calculated based on the ESB's May 2009 general purpose tariff for SME's.



GE imagination at work

# Upgrade to 2D Watt-Miser™

## The next generation of 2D™ lamps

The new 2D™ Watt-Miser™ lamps are energy saving compact fluorescent tubes. Available in either 16W, 21W, 28W, or 38W versions, in a wide choice of colour temperatures. These lamps are a direct replacement for existing 2D™ lamps, delivering market leading life, with excellent energy saving performance that is unique to GE!

2D™ Watt-Miser™ lamps provide similar lumen output as standard 2D™ lamps, with an energy saving of up to 12% dependent upon ballast and wattage.



### Applications

2D™ Watt-Miser™ lamps are suitable for a wide range of exterior and interior applications:

- Residential
- Domestic
- Utility areas
- Task lighting
- Hotels/offices/restaurants
- Emergency lighting
- Decorative installations

### Key benefits

- Reduced energy consumption
- The only 'A' Class energy rated 2D™ lamp
- Maintains market leading lumen maintenance
- Retrofit products to existing fittings and ballasts
- 2 and 4 pin versions

### Energy saving possibilities

	16W			21W			28W			38W		
	W/ Electronic gear	W/ Standard gear	Lumen	W/ Electronic gear	W/ Standard gear	Lumen	W/ Electronic gear	W/ Standard gear	Lumen	W/ Electronic gear	W/ Standard gear	Lumen
2D™ Watt-Miser™ lamp	14.05	14.84	1100	18.76	19.61	1350	24.24	26.74	2150	34	37.41	3000
Standard GE 2D™ lamp	15.4	15.75	1150	20.17	21.17	1450	27.57	28.05	2250	37.28	38.68	3000
<b>Saving</b>	<b>8.8%</b>	<b>5.8%</b>		<b>7%</b>	<b>7.4%</b>		<b>12.1%</b>	<b>4.7%</b>		<b>8.8%</b>	<b>3.3%</b>	

### Through life energy savings - Electronic ballast operation - 16W & 21W

Electronic ballast operation	New Watt-Miser™	Standard	New Watt-Miser™	Standard
Power consumed - W/h	14.05	15.40	18.76	20.17
Cost of energy through life of lamp - €	35.20	38.58	46.99	50.53
CO <sub>2</sub> emission through life of lamp - kg	72.50	79.46	96.80	104.08
<b>Energy cost saving through life of one lamp - €</b>	<b>3.38</b>		<b>3.54</b>	
<b>CO<sub>2</sub> emission saving through life of one lamp - kg</b>	<b>6.96</b>		<b>7.28</b>	

### Through life energy savings - Electronic ballast operation - 28W & 38W

Electronic ballast operation	New Watt-Miser™	Standard	New Watt-Miser™	Standard
Power consumed - W/h	24.24	27.57	34	37.28
Cost of energy through life of lamp - €	60.72	69.06	85.17	93.39
CO <sub>2</sub> emission through life of lamp - kg	156.35	177.83	219.30	240.46
<b>Energy cost saving through life of one lamp - €</b>	<b>8.34</b>		<b>8.22</b>	
<b>CO<sub>2</sub> emission saving through life of one lamp - kg</b>	<b>21.48</b>		<b>21.16</b>	

Energy costs are calculated based on the ESB's May 2009 general purpose tariff for SME's.



GE imagination at work



- 15,000 hrs lifetime
- 600,000 switching cycles
- shorter preheating time



### MAX 9W MEGAMAN FITTING

Order Code	Lamp Base	Diameter (mm)	Length (mm)	Weight (g)
749027 (W)	GU10	80	86	105
749126 (S)	GU10	80	86	105
749225 (G)	GU10	80	86	105

Complete with 9w GU10 lamp.



### MAX 11W MEGAMAN FITTING

Order Code	Lamp Base	Diameter (mm)	Length (mm)	Weight (g)
771530 (W)	GU10	80	86	117
771639 (S)	GU10	80	86	117
771738 (G)	GU10	80	86	117

Complete with 11w GU10 lamp.

### Luminaire for CFL GU10

- Available in the following colours



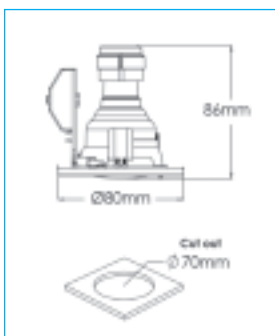
WHITE



SILVER



GOLD



### Product Information

- Perfect replacement for halogen fittings.
- Plastic construction means fast installation when replacing halogen. Simply remove transformer and re-use live/neutral feeds straight into the Max lampholder as no additional earthing is required.
- No transformer required.
- Perfect discreet emergency solution when used in combination with our self ballasted emergency pack.
- High performance alternative to halogen.
- Specially designed to fit the MEGAMAN<sup>®</sup> CFL GU10.
- Fitting tilts up to 30°.

### Applications

Corridors, reception desks, hotels, lounges, restaurants and retail applications.

# THORN

*Goodbye,  
Switch Start*

*Hello,  
High  
Frequency*

## LumExpress

# 14,000

tonnes of CO<sub>2</sub>  
saved every year

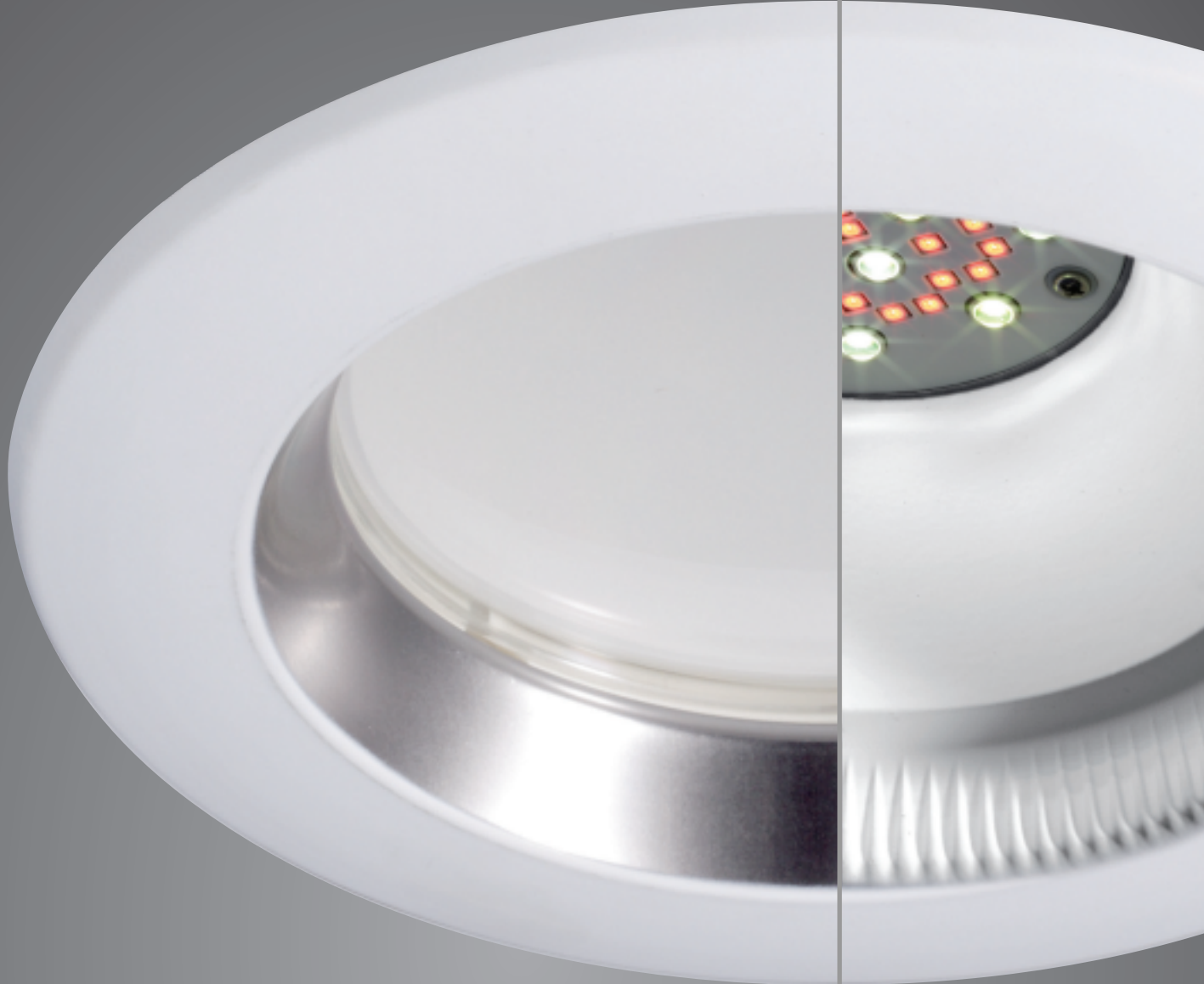
- When you install fluorescent lighting, changing from switch start to high frequency will bring energy and CO<sub>2</sub> savings of 20% (every kWh saved equates to a 0.42kg reduction in emissions)
- Plus paybacks within 1 year, instant start, silent and flicker free operation, dimmability, extended lamp life and lumen maintenance, reduced weight and less waste
- As the cost of energy increases so will the energy savings

**It's time to switch**



**We're saying 'goodbye' to Switch Start NOW on 7 of our core ranges... 'Hello', High Frequency**

[www.lumexpress.co.uk](http://www.lumexpress.co.uk) [www.thornlighting.co.uk](http://www.thornlighting.co.uk)

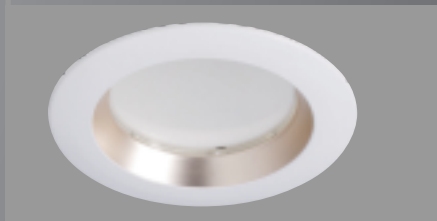


# Base LED

Taking full advantage of Cree's pioneering colour-mixing technology and high-performance LEDs, Thorn has introduced an LED downlight for commercial and residential markets which, to quote Chuck Swoboda, Cree chairman and CEO '...is the first product to deliver on the promise and capability of LEDs with better efficiency and lifetimes than the typical halogen and compact fluorescent products being used today...'

At 12W and with an output of 650 lumens, it matches the output of a compact fluorescent downlight, yet uses 50% less energy, lasts over four times longer (designed for 50,000 hours) and contains no mercury. Available in 2700K and 3500K options, it has an excellent CRI (Ra) of 94 and is dimmable to 20%.

Base LED finally puts paid to the perception that environmentally responsible products come at the expense of performance, efficiency and comfort.





## SPOT LED III - more sparkling and sustainable solutions

Spot LED III is the latest addition to the stylish Philips Spot LED family of projectors and downlights. Offering much higher output and sustainable energy and maintenance saving, it is an outstanding alternative to 50W mains-voltage halogen solutions.



### Attractive and economical

Spot LED III delivers warm-white or neutral-white light that adds a touch of sparkle to retail and hospitality applications. Consuming only 10W, it allows up to 80% energy savings compared with traditional halogen solutions. Its long lifetime makes it a true 'fit and forget' solution and future lowers operating costs.



Spot LED III is available in recessed, semi-recessed adjustable, surface and 3C Track version, all dimmable.

With a 50W halogen equivalence, now it's possible to reach a lot of new applications with only 10W

- ✓ Energy efficient solution Vs Halogen 35W-50W – Save up to 80%
- ✓ No heat in beam
- ✓ Zero maintenance (no-relamping): install & forget
- ✓ All versions are dimmable
- ✓ Optibin Technology (color consistence)





## LuxSpace - high-efficiency sustainable solution

The high energy-efficient LuxSpace makes it possible to achieve extremely low power consumption without sacrificing light quality in general lighting applications.

Designed for 150 mm cut-outs, LuxSpace offers a compact look and feel.

Consuming only 19W, it enables up to 50% energy saving compared with traditional CFL downlights. It is very easy to install, and its long lifetime of 50,000 hours means an end to the hassle of relamping - a true “fit and forget” solution. LuxSpace features the latest LED technology and delivers consistent light output, stable colour performance and high colour rendering ( $R_a > 80$ ).

LuxSpace is the best proposition for your  
Downlight Application

- ✓ Energy efficient solution (~60lm/W for the luminaire) for general lighting vs CFL based downlights (the most efficient downlight)
- ✓ Easy to install
- ✓ Differentiation with smaller size (diameter) and beam control
- ✓ Comfort Version UGR19 (Full office compliant)



## A New Generation of Energy Saving Lighting

Fozz has introduced its first range of energy saving lighting. A stylish and innovative range of products designed and manufactured by Electric Light Systems in association with Megaman.

Using the latest technology – creating contemporary design – providing soft and comfortable light. These statements are the foundations of the Fozz concept and our working philosophy in creating this collection.

Fozz Lighting features a range of professional and residential fittings with Downlights, Spotlights, Table Lamps, Suspensions Systems and outdoor lighting. All the fittings have been designed with Megaman's cutting edge energy saving lamps in mind.



### SALSA SHORT ARM

GX53 | 9W  
SHORT ARM WITH SWITCH  
512525 (CHROME)



### SALSA ARTICULATED ARM

GX53 | 9W  
ARTICULATED ARM WITH SWITCH  
512563 (CHROME)



### SALSA FLEXIBLE ARM

GX53 | 9W  
FLEXIBLE ARM WITH SWITCH  
512549 (CHROME)



### OYA

GX53 | 2X9W  
ARTICULATED ARM WITH SWITCHES  
512369 (CHROME)

#### SPECIFICATION

⊖ CLASS I

▽ CLASS F

⏻ ON/OFF

🔥 850°C

■ MATT CHROME



## A New Generation of Energy Saving Lighting

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PART L COMPLIANT  IP 20 IP 23

### CRONOS

GX53 | 13W  
DOWNLIGHT  
512001 (WHITE) 512420 (CHROME)



  IP 20 IP 65

### OPERA

GU10 | 9W/11W  
DOWNLIGHT  
512389 (WHITE) 512365 (CHROME)

#### SPECIFICATION

 CLASS I/II

 CLASS F

 IN/OUT

 CLICK-IN

 850°C

 POWDERED MATT CHROME  
 POWDERED MATT WHITE



### ARIZONA

GX53 | 2X9W  
UP & DOWN WALL LIGHT  
415045 (SILVER)



   IP 65

### LYX IP65

GX53 | 9W  
WALL LAMP  
511757 (WHITE) 511733 (SILVER)

#### SPECIFICATION

 CLASS I

 CLASS F

 850°C

 POWDERED MATT SILVER  
 POWDERED MATT WHITE

# ENERGY SAVING SOLUTIONS FROM ROBUS®



Have you made the change yet?



TYPICAL PAYBACK IN  
**1.5YRS**

**10YR**  
GUARANTEE

## TOTAL LIFETIME SAVINGS OF THE ROBUS 1X10W LED OVER A 50W HALOGEN

- €326 per fitting in electricity and lamp costs
- 168lbs reduction per fitting in CO<sub>2</sub> emissions
- 25 fewer halogen light bulbs in landfill

### 1 X 10W LED FIRE RATED DOWNLIGHT

This technologically advanced energy efficient down light is a true replacement for the 50W Halogen with similar lumen output. For all building types, this great looking, high quality 10 watt LED fitting is also dimmable, providing a complete solution for lighting design requirements.

FEATURES	BENEFITS		
<ul style="list-style-type: none"> <li>• High flux 10 watt LED</li> </ul>	<ul style="list-style-type: none"> <li>• Over 300% more efficient than a 50W Halogen light with a similar lumen output</li> </ul>	<b>RF110LED-01</b>	White
<ul style="list-style-type: none"> <li>• 50,000 hour average lamp life</li> </ul>	<ul style="list-style-type: none"> <li>• Up to 25 times that of a standard MR16 lamp</li> </ul>	<b>RF110LED-13</b>	Brushed Chrome
<ul style="list-style-type: none"> <li>• No UV content</li> </ul>	<ul style="list-style-type: none"> <li>• No fading - ideal for Artwork</li> </ul>	<b>Diameter:</b>	106mm
<ul style="list-style-type: none"> <li>• Steel fire hood</li> </ul>	<ul style="list-style-type: none"> <li>• Complies with building regulations Part B for fire safety having a 90 minute fire rating</li> </ul>	<b>Depth:</b>	130mm
<ul style="list-style-type: none"> <li>• Dimmable driver (R110DDVR -Sold separately)</li> </ul>	<ul style="list-style-type: none"> <li>• Dimming with a standard dimmer switch or control system creates the ideal ambience for any occasion</li> </ul>	<b>Cut Out:</b>	90mm
		<b>Box Qty:</b>	1
		<b>Weight:</b>	0.5kg
		<b>Max W:</b>	10W
		<b>IP:</b>	20

Complete with Warm white glass filter included -Simple to change light colour from cool white (6000K) to warm white (2700K)

### ENERGY SAVING CALCULATOR FOR RF110LED

TOTAL ENERGY SAVINGS OF RF110LED AFTER 50,000 HOURS	STANDARD 50W MR 16	ROBUS 10W LED
Number of Fittings	10	10
Wattage (W) per fitting	50	10
Total Wattage	500	100
kW	0.5	0.1
Average Lamp Life (hours)	2,000	50,000
Relamping Interval	2,000 hours	50,000 hours
Fitting Cost	€19.35	€126.42
Total Fittings Cost	€193.50	€1,264.20
Lamps Cost	€3.95	€0.00
Times Lamp replaced during 50,000 hours per unit	25	0
Total Lamps replaced	250	0
Total cost of Lamps during 50,000 hours	€987.50	€0.00
Energy cost per kWh	€0.167	€0.167
Energy cost after 50,000 hours (kW x 50,000 x Energy Cost Per kWh)	€4,175.00	€835.00
<b>Total Cost of Ownership after 50,000 hours</b>	<b>€5,356.00</b>	<b>€2,099.20</b>
<b>Total Saving for 10 fittings over 50,000 hours</b>		<b>€3,256.80</b>





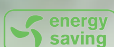
**3W LED MR16 LAMP**

For those wishing to save energy to reduce their carbon footprint, this LED lamp uses just 3 watts of power, is equivalent to approximately 20 watts of incandescent light, and is compatible with most MR16 fittings. It is available in cool white to provide an efficient work or task light, and in warm white for a soft and subtle ambience.

The G Hotel in Galway ([www.theghotel.ie](http://www.theghotel.ie)) has recently installed ROBUS 3W LED MR16 lamps in their corridors, having purchased them from FEGIME member Flaherty Markets LTD in Galway.

This prestigious 5 star Hotel has a modern design with an emphasis on luxury and glamour. The ROBUS 3W LED MR16 lamp is a simple energy efficient replacement for standard lamps. Each lamp lasts 25 times longer than a standard MR16 lamp and provides an energy saving of 80%. The warm white light output provides a soothing ambience perfect for the hotel.

These lamps were also used in the Radisson Hotel – reducing their energy costs, while providing the ideal light output.



**FEATURES**

- Up to 50,000 hours average lamp life
- High power energy efficient 3 watt LED (124 lumens)
- Cool light beam with no UV content
- Available in Cool White and Warm White

**BENEFITS**

- 25 times longer lamp life compared to a standard MR16 lamp
- Almost 7 times more efficient than a 20W GLS lamp with similar light output
- Will not damage heat sensitive objects
- Choose desired tone to suit your mood

<b>R3MR16CW</b>	Cool White
<b>R3MR16WW</b>	Warm White
<b>Diameter:</b>	51 mm
<b>Depth:</b>	45mm
<b>Box Qty:</b>	1
<b>Weight:</b>	0.04kg
<b>Max W:</b>	3W
<b>Cap Type:</b>	G5.3

**3W LED MR16 / GU10 LAMP WITH 60 LEDS (WARM WHITE 3000K)**

Energy efficient 3W cluster LED lamps with equivalent light output to a conventional 20W lamp - saving up to 80% in energy costs.



**FEATURES**

- Energy efficient 3W cluster 3W led lamps
- 10,000 hour lamp life
- Compatible with MR16 & GU10 fittings
- Cool light beam with no UV content

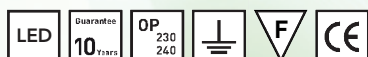
**BENEFITS**

- Saves you up to 80% in energy costs whilst providing a similar lumen output to 20W GLS lamp
- Up to 10 times that of a standard GLS lamp
- A simple energy efficient replacement for halogen lamps
- Will not damage heat sensitive objects

<b>RMR60LEDW</b>	MR16
<b>RGU60LEDW</b>	GU10
<b>Diameter:</b>	50mm
<b>Height: MR16</b>	51mm
<b>GU10</b>	59mm
<b>Weight:</b>	0.04kg
<b>Max W:</b>	3W
<b>IP:</b>	20

**2 X 5W LED FLOODLIGHT IP54**

For all building types, this wall mounted LED floodlight for indoor or outdoor applications provides a clean modern design combined with energy saving LED technology. With a wide beam angle, adjustable head and coming complete with integrated LED driver. A replacement for traditional tungsten halogen floodlights.



**FEATURES**

- 50,000 hours average life
- 2 x 5 watt Warm White Edison LED's
- Integrated driver
- Adjustable head

**BENEFITS**

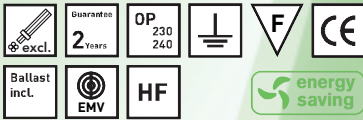
- Up to 20 times that of a Tungsten Halogen flood light so fewer lamp changes required
- Energy efficient, only 10 watts power consumption
- No requirement for separate IP rated housing for driver
- Focus the light to the required location

<b>R25LEDF</b>	
<b>Width:</b>	140mm
<b>Height:</b>	100mm
<b>Projection:</b>	150mm
<b>Box Qty:</b>	1
<b>Weight:</b>	0.78kg
<b>Max W:</b>	10W
<b>IP:</b>	65



**UNIVERSAL PL FITTING C/W 18W & 26W LAMPHOLDER & BALLAST**

A higher output universal twin lamp down light suitable for installation in many commercial or retail areas with technologically advanced electronic ballast providing energy efficiencies to reduce the carbon footprint and comply with today's demanding regulations.

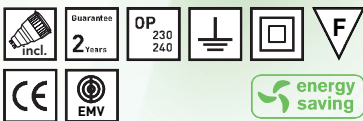


FEATURES	BENEFITS
<ul style="list-style-type: none"> <li>Requires 18W or 26W lamps</li> <li>12,000 hour lamp life</li> <li>High Frequency electronic control gear</li> <li>Part L approved</li> </ul>	<ul style="list-style-type: none"> <li>Energy efficient – running costs approx 20% of those for GLS lamps</li> <li>Up to 10 times that of a GLS lamp so fewer lamp changes required</li> <li>Saving up to 50% energy compared to switch start</li> <li>Complies with UK building regulations</li> </ul>

<b>RUNI218+226-01</b>	White
<b>Height:</b>	232mm
<b>Depth:</b>	146mm
<b>Cut Out:</b>	205mm
<b>Box Qty:</b>	1
<b>Weight:</b>	1.6kg
<b>Max W:</b>	2 x 18W, 2 x 26W
<b>Cap Type:</b>	G24q-2, G24q-3
<b>IP:</b>	20

**SPRING LOADED ENCLOSED DOWNLIGHT C/W 11W CFL LAMP**

This ceiling mounted fitting provides a clean modern design where a pleasing profile is important for indoor residential and leisure applications. Available in either white or brushed chrome finishes providing a stunning fitting combined with amazing energy cost savings.



FEATURES	BENEFITS
<ul style="list-style-type: none"> <li>Complete with 11W GU10 CFL Lamp</li> <li>10,000 hour lamp life</li> <li>Spring loaded lampholder</li> <li>2 year guarantee</li> </ul>	<ul style="list-style-type: none"> <li>Saving 80% energy compared to standard halogen downlights</li> <li>Up to 5 times that of a standard GU10 lamp so fewer lamp changes required</li> <li>Easy lamp changes, reducing maintenance time and cost</li> <li>A quality efficient long life product</li> </ul>

<b>R201CFL-01</b>	White
<b>R201CFL-13</b>	Brushed Chrome
<b>Height:</b>	330mm
<b>Depth:</b>	118mm
<b>Cut Out:</b>	70mm
<b>Box Qty:</b>	10
<b>Max W:</b>	11W
<b>Cap Type:</b>	GU10
<b>IP:</b>	20

**13W FIRE RATED PL DOWNLIGHT C/W 4 PIN LAMP & HF BALLAST**

Ideal for retail, leisure and commercial settings, this fire rated fitting also offers a saving of up to 70% against standard halogen downlights Also available in a Dropped Glass version (RF1131).

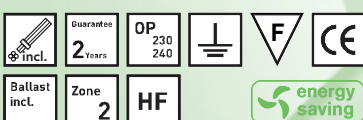


FEATURES	BENEFITS
<ul style="list-style-type: none"> <li>Complete with 4 pin 18 watt PL lamp</li> <li>10,000 hour lamp life</li> <li>High Frequency electronic control gear</li> <li>Fire Rated</li> </ul>	<ul style="list-style-type: none"> <li>Saving 70% energy compared to GU10 halogen lights</li> <li>Up to 10 times that of a standard incandescent lamp so fewer lamp changes required</li> <li>Saving up to 50% energy compared to switch start</li> <li>Designed to give 30, 60, &amp; 90 minutes fire protection</li> </ul>

<b>RF1130-01</b>	White
<b>RF1130-13</b>	Brushed Chrome
<b>Diameter:</b>	95mm
<b>Depth:</b>	133mm
<b>Cut Out:</b>	72mm
<b>Box Qty:</b>	6
<b>Weight:</b>	1.72kg
<b>Max W:</b>	13W
<b>IP:</b>	20

**2 X 18W PL 2D GOLF FITTING C/W WHITE & SATIN SILVER TRIMS**

For all building types this unique IP65 rated, wall or ceiling mounted fitting provides a clean modern design where a pleasing profile is important for indoor or outdoor applications. It is available in a range of trims.



FEATURES	BENEFITS
<ul style="list-style-type: none"> <li>Complete with 4 pin 18 watt PL lamp</li> <li>10,000 hour lamp life</li> <li>High Frequency electronic control gear</li> <li>IP 65</li> </ul>	<ul style="list-style-type: none"> <li>Saving 80% energy compared to incandescent sources</li> <li>Up to 10 times that of a standard incandescent lamp so fewer lamp changes required</li> <li>Saving up to 50% energy compared to switch start</li> <li>Suitable for indoor &amp; outdoor use</li> </ul>

<b>RS218</b>	
<b>Height:</b>	330mm
<b>Depth:</b>	118mm
<b>Box Qty:</b>	6
<b>Weight:</b>	1.72kg
<b>Max W:</b>	36W
<b>Cap Type:</b>	G24q-2
<b>IP:</b>	65



**NEW AU-DLM841**  
240V SGU10 Aluminium **Fixed Lock Ring**  
11W Low Energy Downlight Fire Protection

**NEW AU-DLM842**  
240V SGU10 Aluminium **Adjustable Lock Ring**  
11W Low Energy Downlight Fire Protection

**NEW AU-DLM843**  
240V SGU10 Aluminium **IP65 Fixed** 11W  
Low Energy Downlight Fire Protection



DIMMABLE WITH AU-DSP DIMMERS

FOR EMERGENCY BACKUP WITH AU-EMTRCFL

### FEATURES

- Registered Community Design 390612-0001/2/3(fitting)
- UK Patent GB2426321 (fitting)
- Registered Community Design 000973912-0003 (lamp)
- 40 Lumens per Watt output allows compliance with the Building Regulations Approved document L1A/B requiring the use of energy efficient luminaires in dwellings
- Special SGU10 lampholder prevents insertion of halogen lamps
- Integrated intumescent material completely seals the downlight and cut-out in the event of a fire
- Suitable for 30, 60 & 90 minute fire rated ceilings
- Tested to BS476 Part 21
- Tested to BS EN ISO 140-3:1995 & BS EN ISO 140-6:1998 (Acoustics) confirming that they maintain the ability for an internal or separating floor to provide sound insulation
- 2 Year guarantee



**40 Lm/W**  
**64mm Ø**



See table below for lamp options (lamp not included)  
Please order lamp and luminaire together

Cat. No.	Watts	Life (hrs)	Colour Temp	Lumens
<b>NON - DIMMABLE</b>				
AU-GUF409/30	9W	10,000	3000K	360
AU-GUF409/40	9W	10,000	4000K	360
AU-GUF4011/30	11W	10,000	3000K	440
AU-GUF4011/40	11W	10,000	4000K	440
<b>DIMMABLE</b>				
AU-DGUF4011/30	11W	10,000	3000K	440
AU-DGUF4011/40	11W	10,000	4000K	440

Cat.No.	Max [W]	Lamp Type	Input	Overall [Ø]	Cutout [Ø]	Recess	Horz.Adj.
AU-DLM841*	11W	SGU10	240V	100mm	90mm	130mm	N/A
AU-DLM842*	11W	SGU10	240V	110mm	100mm	147mm	15°
AU-DLM843*	11W	SGU10	240V	100mm	85mm	130mm	N/A



\*Add suffix **W, PB, PC, or SN** to catalogue number for these available finishes:



NEW

**AU-DLED731 30° Beam**  
700mA Aluminium Fixed **3 x 3W** LED Downlight

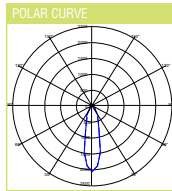


**AU-DLED732 30° Beam**  
700mA Aluminium Adjustable **3 x 3W** LED Downlight

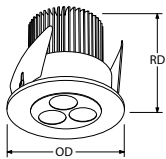
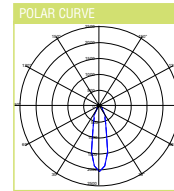


AU-DLED731, AU-DLED732 & AU-DLED733 SUPPLIED IN TWO TONE ALUMINIUM FINISH

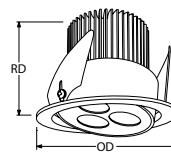
BEAM ANGLE		
1m	0.43m	35.3lux
2m	0.85m	8.8lux
3m	1.28m	3.92lux
4m	1.70m	2.20lux
5m	2.13m	1.41lux



BEAM ANGLE		
1m	0.43m	35.3lux
2m	0.85m	8.8lux
3m	1.28m	3.92lux
4m	1.70m	2.20lux
5m	2.13m	1.41lux



(OD) 78mm Overall Ø  
(RD) 75mm Recess Depth

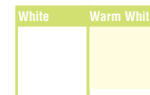


(OD) 80mm Overall Ø  
(RD) 80mm Recess Depth

## FEATURES

- 3 x 3 Watt LED downlight
- Aluminium housing
- Requires 700mA Constant Current LED driver
- Available in two-tone aluminium finish only
- Dimmable with AU-LEDD48CC driver and AU-DSPLED dimmer unit

\*Add suffix **W** or **WW** to catalogue number for White or Warm White LED'S



9W Driver	48W Dimmable
AU-LED709CC	AU-LEDD48CC

Cat.No.	Total [W]	No.LED's	Beam	Input	No. of fittings per driver	Overall [Ø]	Cutout [Ø]	Recess	
AU-DLED731*	3 x 3W	3	30°	700mA	1	5	78mm	65mm	65mm
AU-DLED732*	3 x 3W	3	30°	700mA	1	5	80mm	72mm	80mm



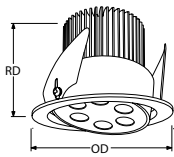
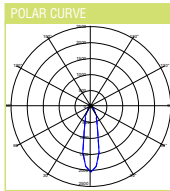
NEW

## AU-DLED733 30° Beam

700mA Aluminium Adjustable 6 x 3W LED Downlight



BEAM ANGLE		
1m	0.42m	69lux
2m	0.85m	17lux
3m	1.28m	7.7lux
4m	1.70m	4.3lux
5m	2.13m	2.7lux



(OD) 128mm Overall Ø  
(RD) 90mm Recess Depth

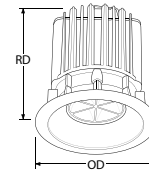
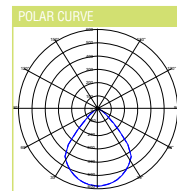
NEW

## AU-DLED661 50° Beam

240V Cast Aluminium Fixed 6 x 1W LED Downlight

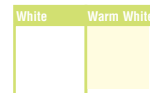


BEAM ANGLE		
1m	0.78m	10lux
2m	1.56m	2.5lux
3m	2.34m	1.1lux
4m	3.12m	0.6lux
5m	3.90m	0.4lux



(OD) 110mm Overall Ø  
(RD) 120mm Recess Depth

\*Add suffix **W** or **WW** to catalogue number for White or Warm White LED'S



### FEATURES

- 6 x 3 Watt LED downlight
- May be connected with the simple LED plug & play connection system
- Requires 700mA Constant Current LED driver
- Available in two-tone aluminium finish only
- Dimmable with AU-LEDD48CC driver and AU-DSPLED dimmer unit

### FEATURES

- Mains Voltage 6 x 1 Watt LED downlight
- Integrated LED driver
- Available in White finish only
- Non-dimmable

18W Driver	48W Dimmable
AU-LED7018CC	AU-LEDD48CC

Cat.No.	Total [W]	No.LED's	Beam	Input	No.of fittings per driver	Overall [Ø]	Cutout [Ø]	Recess	
AU-DLED661*	6 x 1W	6	30°	240V	N/A	N/A	110mm	100mm	120mm
AU-DLED733*	6 x 3W	6	50°	700mA	1	2	128mm	110mm	90mm



## Galaxy Micro PLC Downlights

### Supplied Less Lamp

- Low Energy Downlight
- Reduced running costs
- Long life lamp
- Comprehensive and versatile range of micro recessed single compact fluorescent downlights
- High Frequency control gear as standard
- Extensive range of inter-changeable, interlocking accessories applicable to luminaries
- Single size cut-out provides continuity across installations for all lamp options
- Quality anodised aluminum reflector for maximum efficiency and performance.
- Emergency versions using a remote maintained pack available as standard.
- Supplied pre-wired with 3 metres to black flex provided easy fast installation



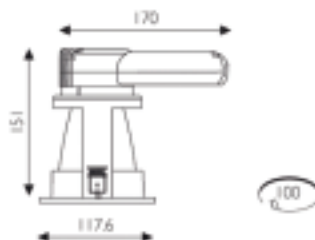
### Galaxy Micro High Frequency

Code	Lamp Type	Description	Weight (kg)
AGMPLI13/W/HF	PL-C	1 x 13W PL High Frequency	0.5
AGMPLI18/W/HF	PL-C	1 x 18W PL High Frequency	0.5
AGMPLI26/W/HF	PL-C	1 x 26W PL High Frequency	0.5

### Options

/M3 Emergency

CE F  HF M3R IP20





## Opti-Lux Low Energy Low Bay

### Supplied Less Lamp

- Reduced running costs
- Long life lamp
- Running cost comparisons available
- High Frequency control gear as standard
- High Efficiency, low energy fitting with Micro 4 polished reflector for commercial and industrial applications
- Optimum performance allows for reduced luminaire quantities
- ST18 socket and loose plug for ease of installation and maintenance
- Suitable for applications with mounting heights between 4 and 10 metres
- Carbon Trust Approved Luminaire



Opti-Lux Low Energy Low Bay						
Code	Lamp Type	Description	A	B	C	Weight (kg)
AOP455PLLB	PL-L	4 x 55W HF	610	415	140	5.85
AOP655PLLB	PL-L	6 x 55W HF	610	600	140	7.65
AOP480T5LB	T5	4 x 80W T5	1500	415	100	11.8

### Accessories

AOP4/PD	4 x 55W Polycarbonate diffuser
AOP4/WG	4 x 55W Wire guard
AOP6/PD	6 x 55W Polycarbonate diffuser
AOP6/WG	6 x 55W Wire guard
AOP480/PD	6 x 80W Polycarbonate diffuser
AOP480/WG	6 x 80W Wire guard

### Options

/M3 Emergency

CE   HF DIM IP20





LIGHTING & CONTROLS

## UNIFLOODPLUS

Professional IP67 floodlight that incorporates the Osram Endura Lumilux lamp and Osram Quicktronic electronic control gear with options of 70W and 100W. With lumen outputs from 6,500 to 8,000 and instant restrike. The lamps are guaranteed for 60,000 hours continuous use with low energy power consumption, due to the external lamp life this product is ideal for installations where re-lamping is expensive such as outdoor lighting, factory and tunnel lighting.

The floodlight body and frame are manufactured from high quality thermo plastic UV and heat stabilised. The standard colour is black but also available in a choice of vibrant RAL colour options. For dusk to dawn operation built in photocell versions are available.



## UNIFLOOD-HL

The innovative Trac-HL is a fluorescent luminaire with high frequency control gear, instant start and high output for T5 lamps providing the end user with a long life highly efficient energy saving fixture. Ideal for difficult access areas and applications where greater control is required. Also available with integral photocell, emergency and dimming options. Designed for use in industrial, commercial and sports applications and suitable for mounting heights of between 5 and 20 meters. The fixture can be suspended on chairs or trunking. IP5X or IP54 versions available with a wide variety of control gear options and accessories.



High Bay lighting has traditionally involved making trade-offs between the limitations of different lighting technologies - until now!




















We use the latest technologies to reduce your lighting costs by up to two thirds - lighting solutions so efficient that they can pay for themselves in the first four months. On top of this, there are further maintenance savings to be made as the latest lamps have at least five times the life-span of traditional Metal Halide lamps.



LIGHTING & CONTROLS

# COMPACT FLUORESCENT FIXTURES

In a world where energy costs are ever increasing, we are experiencing a growing demand for our energy efficient lighting fixtures and have gathered together our most popular compact fluorescent fixtures to help find the exact product you are seeking.

Description	Lamp	Part No.	White	Silver	Description	Lamp	Part No.	White	Silver
<b>TRAC PRO</b> <b>ASYMMETRIC REFLECTOR</b>					<b>CHURCHILL</b> <b>CLEAR DIFFUSER</b>				
	26W - BLACK - S/START	CF.4	PRO26			26W - BLACK - SWITCH START	CF.4	CW26CL	/W /S
	2 X 26W - BLACK - S/START	CF.4	PRO226			28W - BLACK - SWITCH START	CF.8	CW28CL	/W /S
	26W - BLACK - HF	CF.5	PRO26/HF			38W - BLACK - SWITCH START	CF.9	CW38CL	/W /S
	32W - BLACK - S/START	CF.5	PRO26			26W - BLACK - HF	CF.5	CW26CL/HF	/W /S
	42W - BLACK - S/START	CF.6	PRO26			28W - BLACK - HF	CF.9	CW28CL/HF	/W /S
						32W - BLACK - HF	CF.5	CW32CL/HF	/W /S
						38W - BLACK - HF	CF.9	CW38CL/HF	/W /S
						42W - BLACK - HF	CF.6	CW42CL/HF	/W /S
<b>SIGNLITE</b> <b>LOW ENERGY SIGN LIGHT</b>					<b>UNIPACK</b> <b>UNIVERSAL WALL/POST TOP LUMINAIRE</b>				
	26W - BLACK	CF.4	BK126			26W - BLACK - SWITCH START	CF.4	UW26	/W /S
	32W - BLACK	CF.6	BK132			28W - BLACK - SWITCH START	CF.8	UW28	/W /S
	42W - BLACK	CF.6	BK142			38W - BLACK - SWITCH START	CF.9	UW38	/W /S
						26W - BLACK - HF	CF.5	UW26/HF	/W /S
						28W - BLACK - HF	CF.9	UW28/HF	/W /S
						32W - BLACK - HF	CF.6	UW32/HF	/W /S
						38W - BLACK - HF	CF.9	UW38/HF	/W /S
						42W - BLACK - HF	CF.6	UW42/HF	/W /S
						57W - BLACK - HF	CF.7	UW57/HF	/W /S
<b>GB</b> <b>SYMMETRIC REFLECTOR</b>					<b>ASTROLUX</b> <b>PLATE MOUNTED (1000MM)</b>				
	26W - BLACK - S/START	CF.4	GB26	/W /S		26W - BLACK - S/START	CF.4	BOL26/100	
	32W - BLACK - HF	CF.5	GB32/HF	/W /S		26W - BLACK - HF	CF.4	BOL26/HF/100	
	42W - BLACK - HF	CF.6	GB42/HF	/W /S		32W - BLACK - HF	CF.5	BOL32/HF/101	
	2X 26W - BLACK - HF*	CF.5	GB52/HF	/W /S		42W - BLACK - HF	CF.6	BOL42/HF/102	
	2X 32W - BLACK - HF*	CF.5	GB64/HF	/W /S		57W - BLACK - HF	CF.7	BOL57/HF/103	
	2X 42W - BLACK - HF*	CF.6	GB84/HF	/W /S					
<b>STYLE MINI</b> <b>SYMMETRIC REFLECTOR</b>					<b>ITINERA MINI</b> <b>GLASS COVER</b>				
	26W - BLACK - S/START	CF.4	SM26	/W /S		32W - GREY - HF	CF.5	ITMVP32/HF	
	26W - BLACK - HF	CF.5	SM26/HF	/W /S		42W - GREY - HF	CF.6	ITMVP42/HF	
	32W - BLACK - HF	CF.5	SM32/HF	/W /S		57W - GREY - HF	CF.7	ITMVP57/HF	
	42W - BLACK - HF	CF.6	SM42/HF	/W /S		70W - GREY - HF	CF.77	ITMVP70/HF	
	2 X 32W - BLACK - HF	CF.5	SM64/HF	/W /S		85W - GREY - HF	CF.14	ITMVP85/HF	
	2 X 42W - BLACK - HF	CF.6	SM84/HF	/W /S		120W - GREY - HF	CF.14	ITMVP120/HF	
<b>UNIFLOOD MAXI</b> <b>SYMMETRIC REFLECTOR</b>					<ul style="list-style-type: none"> <li> CF.4 - Compact fluorescent, 2 pin, (Gx24d-3), triple</li> <li> CF.5 - Compact fluorescent, 4 pin, (Gx24q-3), triple</li> <li> CF.6 - Compact fluorescent, 4 pin, (Gx24q-4), triple</li> <li> CF.7 - Compact fluorescent QE, 4 pin, (Gx24q-5)</li> <li> CF.77 - Compact fluorescent QE, 4 pin, (Gx25q-6)</li> <li> CF.8 - 2D, 2 pin, (GR8)</li> <li> CF.9 - 2D, 4 pin, (GR10q)</li> <li> CF.11 - (E40) CAP</li> <li> CF.12 - (E40) CAP</li> <li> CF.14 - PLH (2G8 - 4pin) 85W or 120W</li> </ul>				
	85W - BLACK - HF	CF.14	UM85/HF	/W /S					
	2 X 85W - BLACK - HF	CF.14	UM285/HF	/W /S					
	120W - BLACK - HF	CF.14	UM120/HF	/W /S					
	2 X 120W - BLACK - HF	CF.14	UM2120/HF	/W /S					

**PC** PHOTOCCELL OPTIONS ARE AVAILABLE ON ALL TYPES, TO ORDER SUFFIX CODE WITH /PC e.g. **UW26/PC**

NB: 2x lamp versions can be independently switched allowing for PIR to control one lamp. Special order (PIR not supplied – fitted remote).

\*Twin HF Ballast Unit



Item	Code
3F Cub R90	5600
3F Cub IP64	5610

## 3F Cub

### Applications

Industrial and commercial environments, warehouses. Suitable to light with fluorescent lamps environments with heights from 4 m to over 12 m.

### Energy saving

Electronic ballasts with an energy efficiency index EEI=A2. 3F Cub complies with European standard 2000/55/CE about energy efficiency of fluorescent lamps' ballasts.

### Economical management

- ✓ Very high average lamp's life.
- ✓ Double switching on as standard.
- ✓ Less depreciation of lumen output during service life.
- ✓ Safety shutdown of the power supply to defective lamps.
- ✓ High luminous efficacy of lamps, over 87lm/W.
- ✓ No need for immediate maintenance: the failure or the end of life of a single lamp does not affect working conditions.
- ✓ Easy and quick installation: on raceway, suspended or ceiling.
- ✓ Smoke repellent flow recuperators enable installation of diffuser-free models even in industrial applications.
- ✓ For environments with significant presence of dust, versions with glass totally dust-proof, to keep luminous efficiency as time passes and for less maintenance to clean reflecting surfaces.

### Quality of light

- ✓ Always immediate ignition and re-ignition.
- ✓ Excellent colour rendering index >80 (in accordance with the European standard EN12464 concerning workplace lighting).
- ✓ Limited glare.
- ✓ No stroboscopic effect.
- ✓ Higher tolerance to the mains power supply voltage fluctuations (10%).
- ✓ Extremely low UV emission.
- ✓ High flow emergency wiring.
- ✓ Optional luminous flux dimming and/or lamp automatic switching off by sensors and photocells.



Beta 4x Steel  
Beta 4X Steel-Glass

## Beta 4x T5

Lighting with fluorescent lamps is now possible even with heights from 4 to over 12 m. Version IP64. Totally dust-proof.

### BETA 4x Steel T5

- ✓ Application in industrial environments, warehouses and fairs.
- ✓ Efficiency E>90%.
- ✓ Housing in white painted steel.
- ✓ Wide and concentrated distribution parabolic flow recuperator in specular aluminium with superficial titanium-magnesium treatment, non-iridescent, fitted as standard.
- ✓ Very low loss wiring with starter, power factor correction, fuse.
- ✓ Electronic wiring 230V-50/60Hz, power factor >0.95, fuse, twin-lamp ballasts with lamp warm start.



i3F 714 Steel	Code
Wide flow recuperator - Very low loss with starter i3F 714x58 AMPIO IP43	57000
Electronic i3F 714x58 HF AMPIO IP43	57004
Concentrated flow recuperator - Very low loss with starter i3F 714x58 CONC IP43	57008
Electronic i3F 714x58 HF CONC IP43	57012

IP64 Totally dust-proof i3F 764 Steel-Glass	Code
Wide flow recuperator - Very low loss with starter i3F 764x58 AMPIO IP64	57090
Electronic i3F 764x58 HF AMPIO IP64	57094
Concentrated flow recuperator - Very low loss with starter i3F 764x58 CONC IP64	57098
Electronic i3F 764x58 HF CONC IP64	57102

## 3F Linda

### Waterproof and Corrosion Proof Fittings

#### Clean

As a result of its special design, with regular, streamlined shape and patented snug fit snap-lock clips, it is ideally suited to both home and commercial environments. Cleaning is effective even without need to remove the diffuser.

#### Compact and Sturdy

Thanks to its characteristic egg shape, internal reinforcing structure, and polycarbonate's infrangibility.

#### Set of three metal brackets supplied

Extremely safe fixing by means of internal and external metal brackets for optimum weight distribution and sliding quick-assembly fixing bracket which can be adjusted to suit the thermal expansion of the luminaire even in environments with a notable temperature range.

#### Diffuser

Innovative technology and new materials allow a reduction in thickness which increases not only luminous efficiency, but also elasticity, thus ensuring improved sturdiness and infrangibility.

#### Vandal Proof

Diffuser opening Access by means of screwdriver.

#### Flow Recuperators

Possibility of optimising luminous efficiency in useful working area by using flow recuperator.



Item	Code
3F Linda Inox 1x14 T5 HF	5700
3F Linda Inox 1x28 T5 HF	5702
3F Linda Inox 1x35 T5 HF	5704
3F Linda Inox 1x49 T5 HF	5705
3F Linda Inox 1x80 T5 HF	5706
3F Linda Inox 2x14 T5 HF	5707
3F Linda Inox 2x28 T5 HF	5709
3F Linda Inox 2x35 T5 HF	5711
3F Linda Inox 2x49 T5 HF	5712
Single-lamp version 160 mm wide Concentrated flow recuperator	
3F Linda Inox 1x80 T5 HF CONC	5720

Eco-flood is a high quality British manufactured energy efficient flood / sign light. Utilising a single 26w compact fluorescent lamp, it produces a remarkable amount of light for such a low wattage fitting.

## eco - flood

The Eco-flood has been designed to meet with specifier's needs and is tested to IP 65 and BS 4533 EN60598. Constructed from UV stabilised polycarbonate it is built to last and will not discolour or become brittle. The 26W lamp is boosted by a mirror finished aluminium reflector, and it's low running temperature allows the lamp to perform to it's maximum output. The fitting can be fixed directly to a wall, or it can be used as a back light (signage) with an extension arm 400mm/600mm. There is also a large stirrup bracket version with adjustable thumb wheels for directing the light.

Dimensions mm: H 231 W 244 D 90 ( body only.) Switch start ballast.



supplied with lamp

- Sign Illumination**
- Exterior Storage Areas**
- Compound Lighting**
- Access Passages and Footpaths**
- Small Car Park Facilities**
- Domestic Security**
- Indoor/outdoor Useage**
- Up lighting on buildings / landmarks**
- Garden Lighting**

CODE	WATTS	VOLTS	COLOUR	CONTROL
LS4100	26W	230/240V	Black	-
LS4100PH	26W	230/240V	Black	Photocell
LS4101	26W	230/240V	White	-
LS4101PH	26W	230/240V	White	Photo cell

CODE	LENGTH	EXTENSION ARM	COLOUR
LS4160	400mm	Extension Arm	Black
LS4162	600mm	Extension Arm	Black
LS4161	400mm	Extension Arm	White
LS4163	600mm	Extension Arm	White

## eco - sensa

Eco-sensa is a product that will give maximum energy efficiency. Utilising a top quality PIR unit in conjunction with a 42W HF lamp and ballast, the unit will only use a fraction of the power consumption of a traditional halogen light.

Dimensions mm: H 330 x W 244 x D90

Rating: IP65

CODE	WATTS	VOLTS	COLOUR	CONTROL
LS4140P	42W	220/240V	BLACK	PIR
LS4141P	42W	220/240V	WHITE	PIR
LS4100P	26W	220/240V	Black	PIR
LS4101P	26W	220/240V	White	PIR



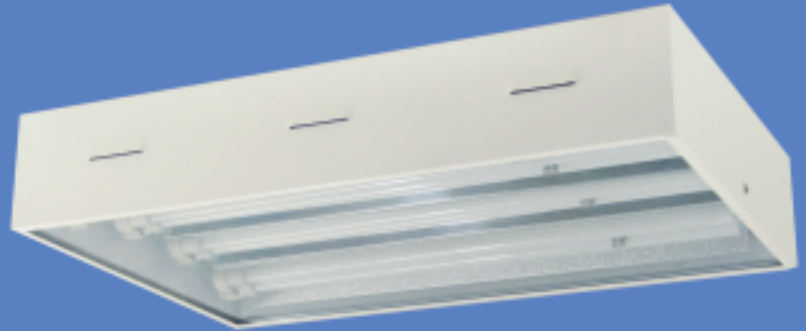
## Eco-bay

Eco-bay is a low-energy alternative to the traditional 250W/400W discharge low bay fittings. The fluorescent eco-bay is available in two wattages, 4x55W (220W) and 4x80W (320W). Further energy efficiency can be achieved by utilising dimmable control gear with various lighting controls (PIR)(Daylight linking).

Dimensions	H115 L600 W405
Weight	
Colour	White powder coated
Construction	Steel
Emergency	Available

### Accessories:

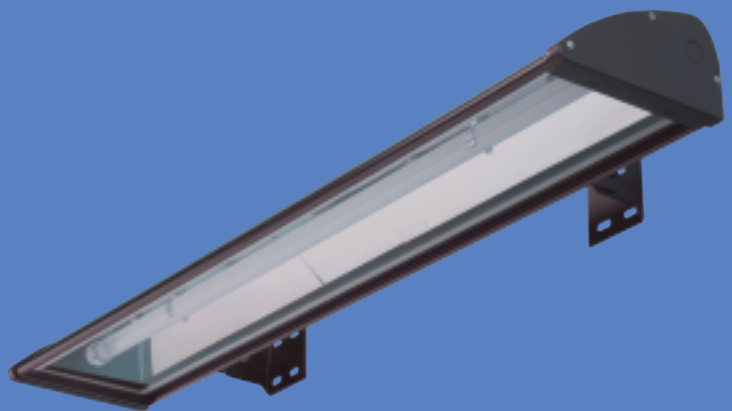
- Dimmable control gear
- Toughened safety glasses
- Polycarbonate cover ( 4 x 55W only)
- Wire grill (powder coated)



CODE	WATTAGE	CONTROL
LS7100	4X55W PLL	220/240V HF
LS7100D	4X55W PLL	220/240V HF DIMMABLE
LS7101	4X80W PLL	220/240V HF
LS7101D	4X80W PLL	220/240V HF DIMMABLE

## Eco-linea

Eco-linea is an extruded aluminium sign light that can be used in the upward or downward position. The unique lens fixing method allows the removal of the lens without removing the end caps. The eco-linea can be joined together to make a continuous run of illumination over signage or up lighting a building. Almost any colour can be achieved with our R.G.B colour change version. Both fitting sizes can be joined to make continuous lengths.



CODE	WATTAGE	VOLTS	LENGTH	COLOUR
LS4180	1X28W T5	220/240V HF	1200MM	BLACK
LS4181	1X28W T5	220/240V HF	1200MM	WHITE
LS4185	1X36W T8	220/240V HF	1300MM	BLACK
LS4186	1X36W T8	220/240V HF	1300MM	WHITE
LS4190	1X35W T5	220/240V HF	1500MM	BLACK
LS4191	1X35W T5	220/240V HF	1500MM	WHITE
LS4195	1X58W T8	220/240V HF	1600MM	BLACK
LS4196	1X58W T8	220/240V HF	1600MM	WHITE

# LED Fittings

## Benefits of Whitelight LED Lighting:

High Efficiency	No Waste
✓ Specialised Driver	× Mercury
✓ Up to 80% Energy Saving	× Lead
✓ 2 Year Warranty	× UV
✓ Reliable Lifespan	× Infra-Red
✓ System Efficiency	× Secondary Optic

### LED Street Light SP1009

- Wattage: 50W
- Lumen Output: 3750Lm
- Colour: Cool White (5000K-6000K)
- Beam Angle: 170°
- Aluminium Alloy Housing
- Glass Cover
- IP65



### LED Flood Light SP2019

- Wattage: 100W
- Lumen Output: 7500Lm
- Colour: Cool White (5000K-6000K)
- Beam Angle: 170°
- Aluminium Alloy Housing
- Glass Cover
- IP65



### LED Flush / Downlight Fittings SP7049

- Wattage: 9W
- Lumen Output: 675Lm
- Colour: Cool White (5000K-6000K)  
Warm White (3000K-4000K)
- Beam Angle: 40° or 130°
- Hole Cut: 180mm
- Aluminium Alloy Housing
- Glass Cover
- IP40



### LED High Bay Fittings SP7006

- Wattage: 120W
- Lumen Output: 9000Lm
- Colour: Cool White (5000K-6000K)
- Beam Angle: 130°
- Aluminium Alloy Housing
- Glass Cover
- IP65



### LED Flood Light SP3002

- Wattage: 12W
- Lumen Output: 900Lm
- Colour: Cool White (5000K-6000K)
- Aluminium Alloy Housing
- Glass Cover
- IP65





The HORUS Range of floodlights is designed for use in many applications. They are made of reinforced, mass-coloured polyamide. The material used ensures greater mechanical resistance and less aging due to thermal stresses and UV rays, since it is superior to polycarbonate. The bracket is hot galvanised steel coated with polyester powder in the same colour as the casting. Full range of 99.85 aluminium dishes that have been polished and anodized in order to get the highest light yield over time.

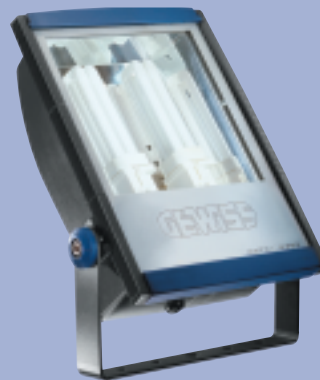
They include flat tempered glass that opens by handle and hinge in reinforced nylon, silicone seal. The connection between glass and hinge is outside the perimeter of the seal so as to increase the reliability of the seal. All external nuts and bolts are made of stainless steel.

Technopolymer floodlight with groundbreaking technical solutions. Available with symmetrical, asymmetrical, diffused, restricted, circular and street optics.

- ✓ IP65 protection class
- ✓ Immediate access to the lamp and component compartment
- ✓ Autonomous emergency version for 32W fluorescent lamp
- ✓ Directional aiming with graduated goniometric scale



GW85006  
2x42W



GW85306  
2x18W



GW85366  
1x42W

### 42 W FLUORESCENT

HORUS uses one of the newest and most efficient compact fluorescent sources, the 42 W with 3200 lumens with 76 lm/W efficiency in the single lamp and twin lamp versions. The high frequency electronic power supply allows maximum visual comfort to be attained, so it is also ideal for interiors. The light given off by the 42 W lamp corresponds to that of a 200W Rx7S halogen lamp.

### LONGER LAMP LIFETIME

Owing to the weight and size of the lamp, all 400 W versions use a stainless steel support spring. This solution prevents the lifetime of the lamp from being shortened due to its oscillations during operation.

### ACCESSIBILITY AND SAFETY

Access to the lamp and electrical components is immediate because the optical compartment is opened with a lever handle. The absence of the frame prevents grime and water from accumulating. If necessary, vandal-proof protection is obtained by mounting a self-tapping lock screw on the handle. All versions are Class II and earthing is not required. The wiring compartment is accessed by turning just one screw. The supply unit for the discharge lamps is equipped with thermal protection in order to rule out any abnormal operating conditions when the lamp's lifetime runs out.

### RESISTANCE AND LIGHT WEIGHT

The thermoplastic casing is so sturdy that it passes the shock tests required by the DIN 18032-3 standards for specific use in sports facilities where football is played. HORUS is also the best solution for installation in particularly critical environments, such as the marine environment.

### ANTI-GLARE LOUVRE

The Horus 1 anti-glare louvre HACCESSORY is easily mounted in the glass closing system without the need for tools or fixing accessories.

### IT SAVES AT LEAST 10 MINUTES WHEN INSTALLING

In order to make installation easier, HORUS is supplied in the packing already with the bracket dismantled and complete with the connection accessories.

### AIMING

The bracket's special clutch and locking system has been studied to ensure stable aiming over time. The solution envisaging stainless steel screws with sockets and plug-free goniometer make it easy to tighten without the risk of damaging the bracket or having unattractive plugs coming off.

Eco-ficient Solutions



Make energy and cost saving *your* business

# Tebis TX

The intelligent building system of tomorrow...today



# Building systems technology today:

## Energy Saving:

Systems can reduce the unnecessary energy usage of your home thus minimising the impact on the environment.

## System differences: a comparison

### Conventional installations:

Conventional installations use lots of cables in runs, back and forth to wall switches. Power must be fed everywhere throughout the building of control. The switches isolate the power on the way to the light fittings, switching them on and off. Once the first fix is complete, last minute alterations can be disruptive and costly.

### V's

### Intelligent building system:

Wiring simplicity is one of the key advantages of this type of system. It requires the installation of only one control cable. Power is connected directly to the load (i.e. lighting) with all controls achieved through the control cable. When switching on (e.g. pushing the button), instruction is sent to the power to your chosen light or equipment. This gives you the benefit that changes can be made at any time to enable you to control any light or piece of equipment from any switch. You can easily add an additional switch to the system, if the property is extended for example. Providing the future flexibility essential for today's installations.

## Why should I choose an intelligent building system technology for my home?

Tebis TX from Hager provides you with the security of a major European expert in intelligent electrical installations.

### Energy efficiency:

Energy costs are rising and Tebis TX can offer the technology to realise true energy savings through automation.

### Return on investment:

The housing market is very competitive. An intelligent building system can help you sell your home in the future by providing the functionality home owners are looking for today and the future.

### Future proofing:

You can change and adapt the functionality of your home over time with ease. As your life evolves, so can your home.

### Scenarios:

Control commands can be at the touch of a button. For instance when watching a DVD you may want to dim the lights, close the blinds and bring down the projector screen. With Tebis TX this can be achieved with one command.

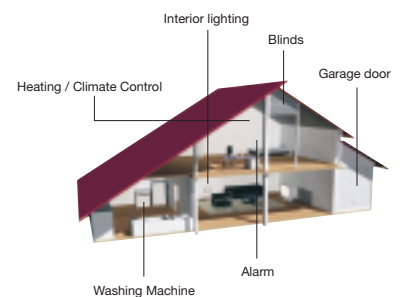
*The possibilities are endless: however here are two simple scenarios:*

### Exit Scenario:

How many times have you left the house and accidentally left a light on? An exit scenario could be configured such that on leaving your home, one button can be pressed to turn off all your lights.

### Childrens bedroom:

One switch for your child to illuminate all lights to the bathroom. On getting up your child operates a switch mounted close to their bed. This switch turns on their bedroom light, the hall light and the bathroom light. On returning to bed at the push of a button all the lights are turned off.



# Tebis TX

## 7 good reasons to choose Tebis TX:

### 1 For your comfort

- From the main entrance, switch on or off all lights.

- Switch any light from several places in a room.

- Switch and dim from anywhere using a remote control.

- Set a scene with one button: for home-theatre, lights for dinner, children's rooms that don't need full lighting, minimum lighting at night (e.g. toilets, kitchen).

### 2 For a 'touch of class'

- A switch mounted on any surface (e.g. on glass, under a table) without cabling.

- In room LCD display of temperature, state or circuits etc, with switches incorporated.

### 3 For automation

- Corridor or passage lights can be switched automatically, on a timer, using presence detectors or a light sensitive cell.

- A single switch to raise or lower shutters or sunblinds.

- Remote-opening of your garage door.

### 4 For your security and peace of mind

- Presence simulation during absence

- From your bed, switch on all corridor lights and exterior lights

### 5 For your safety and safety of others

- Reduce risk of electrocution, by use of the very low voltage (29V) on all switches.

- Lower shutters & awnings in case of high winds.

### 6 For energy saving

- Switch-off lights, heating or cooling when leaving.

- Light corridors and other common areas only when required using presence detectors.

### 7 For future-proofing, flexibility and freedom

- Any brand, design or finish of wall switches and accessories can be used

- Be free from fixing everything at the initial planning stage: each switch or input can control any one or several outputs and can be modified at any time.

- Nothing is definite:

- always have the right switch in the right place (add switches where and

- whenever needed)
- modify scene settings more easily than moving furniture
- complete the installation over time, as budget permits

- When installing a new switch, no need to re-decorated: battery powered switches can be installed at anytime, without wiring

and finally...

### Peace of mind for the future:

Tebis TX from Hager means 20 years experience of home automation and the guarantee that only a top-quality world-leader can offer.

## Benefits

Using bus technology provides a series of benefits over conventional installation practices including the following...

### Scalable

Tebis TX provides the technical infrastructure to change and evolve, allowing for expansion or change of use. With smart building system technology, functional changes cause relatively little additional expenditure during the construction as installation of new cables is no longer necessary even when making additions to the system after completion. Radio frequency (RF) technology can be used to expand the system without the need for additional cabling. Switches can be located anywhere in the building and the functionality of each input can be changed or adapted over time as needs change.

### Energy Control:

Tebis TX offers the technology to realise true energy savings through automation. Maximum energy savings are achieved where the system controls digital lighting and heating. Configuring the system for both automatic switching of lighting / heating plus predetermined timed settings is simplicity itself. In addition, by using daylight sensing PIR devices to dim lighting in response to natural light availability, energy savings will be maximised. This alone has been proven to cut lighting energy consumption by up to 70%.\*

\*Source: Building Energy Research Group, Department of Building and Construction, City University of Hong Kong

### Tebis TX for Residential

Consumer Expectations for increased control of lighting, security and heating continue to rise. With this increasing demand, there is need for simple, smart building system technology in the modern home. Conventional lighting and power distribution will continue to be the most common choice in smaller residential developments but consideration must be given to the changing needs of the home over time.

**Tebis TX, the smartest building system - meets and exceeds the desires and expectations of the homeowner.**

### Tebis TX for Commercial

Large Corporations such as Tesco, JJB Sport and Mothercare have energy efficiency at the top of their agendas, with all benefiting from the increased energy efficiency provided by the latest Tebis TX system. Utilising a bus-based approach to control, the system offers benefits such as increased flexibility, functionality, safety and future proofing. In addition, the use of a memory card as a template to save the installation programme means that for multiple retail outlets with the same layout, commissioning is simplicity itself.

**Tebis TX, the smartest building system - delivers commercial automation for the digital age.**



## welcome to echo™...



wireless • batteryless • self-powered

Imagine switch technology that needs no wiring, uses no batteries and is effortless to install and commission. Sounds good? Well you'll like the sound of echo.™ Echo™ is an innovative range of entirely wireless, batteryless and self powered switches, only available from MK Electric. Wireless – instant switch installation and location flexibility, reducing disruption and cost. Batteryless – low maintenance and low running costs makes echo™ a very versatile and sustainable option. Self Powered – using innovative technology to 'harvest' energy. Backed by MK Electric's proven track record for quality and reliability. Echo™ is the future of the switch.

### Why echo?

- Wireless:** Instant switch installation, location/relocation. Flexibility means less cost, less disruption.
- Battery less:** Low maintenance, low running costs. Eliminates nuisance and waste – sustainable option
- Flexible:** Free from the constraints of wiring. Simpler to change installations.
- Compliance:** Supports Building Regulation compliances. RoHS compliant.
- Innovation:** Innovative proven technology. Self powered switches.



### Typical Installations

- Channelling not Practical / Desirable:
  - concrete wall, glass walls, zoned areas, additional light points
- Channeling not Permissible / Legal:
  - listed Buildings, bathrooms
- Time critical installations:
  - office re-layouts, warehouses, factories
- Reduced layout costs:
  - high churn/short term lease
- Running Cable is not practical:
  - warehouse racking, outdoor power

# Simple Energy Saving Solutions - Motion and Presence detectors



Motion detectors are designed to detect movements such as a person walking through a building, stairways and corridors for example. Presence detectors are designed for detecting smaller movements such as people working at a desk.

Motion detectors are particularly effective when used in low use areas such as bathrooms, toilets and storerooms when the lighting will only be activated when the area is occupied, thereby saving energy.

Presence detectors are ideal for controlling lighting in office spaces as they not only detect large movements but also smaller activities such as people working, so that they are not left in darkness. When the area is left unoccupied the lighting will be switched off thereby minimising the energy usage of the area.

Some motion and presence detectors include a photocell which senses natural daylight and can be used to control the lighting during periods of high ambient natural lighting levels, thus avoiding the use of unnecessary energy.



**new** from Hager  
**IP55 Motion Sensor**  
140° - 360°

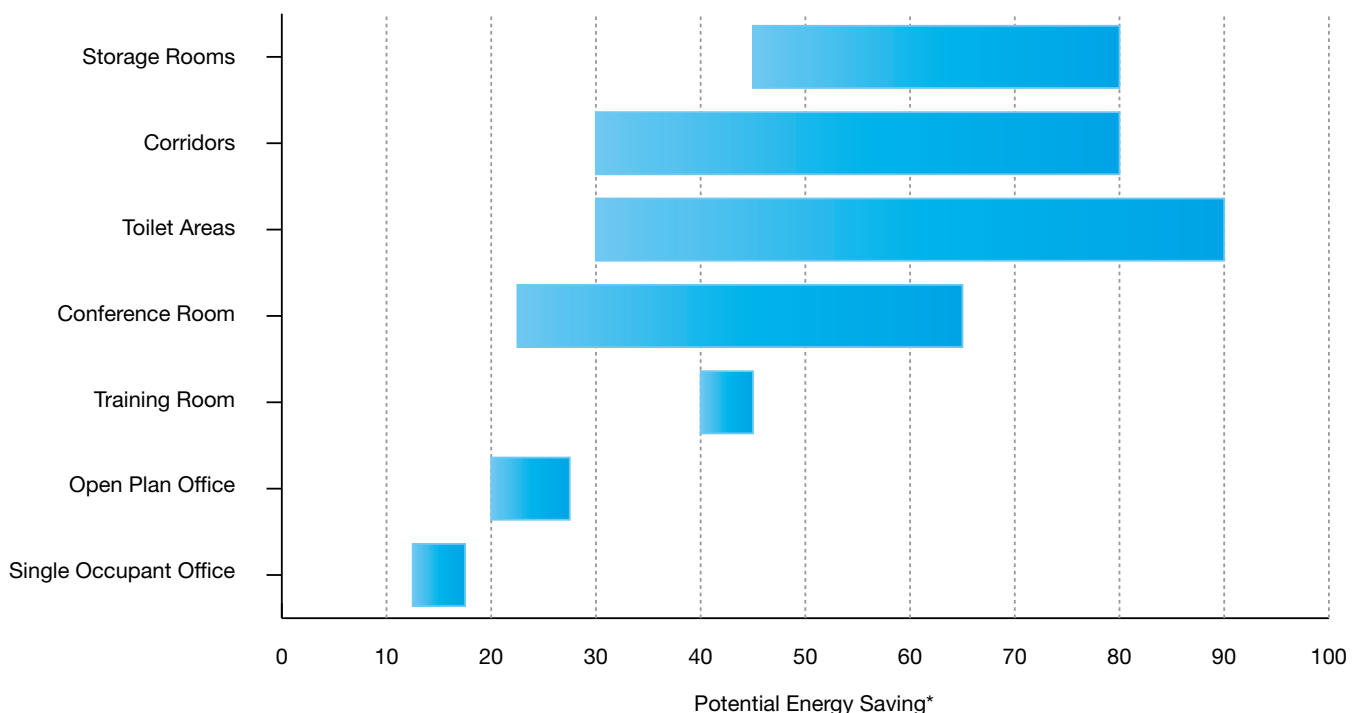
**new** from Hager  
**Flush Mounted Occupancy Sensor**

## A typical application example for energy savings using motion and presence detectors

In a large commercial building or office complex motion detectors could be installed in the toilet and storage areas, and presence detectors fitted in the office areas. With the additional benefit of daylight sensing this means that the

lighting throughout the building would be optimised to match the occupancy levels in every area. Some typical examples of savings per area can be seen in the table below:

### Energy Saving Potential through use of Occupancy Sensors





What would shopping be like without illuminated shop windows?

Theben weekly and yearly timers help present goods and hoardings in their best light and for exactly the desired amount of time. Not only the world of dreams but also completely everyday processes can be controlled by Theben time control solutions: from pump controls through heating and ventilation control to complete lighting provision for buildings.

Shop windows and advertising hoardings. Theben helps provide an attractive look.



**TERMINA 610 top2**  
**Weekly time switch**

- 1-channel weekly timer with easy-to-follow, text-based instructions
- Spring terminals enable quick and easy installation
- Interface for OBELISK top2 memory card enables PC programming
- Copying, archiving and operation is possible via a second insertable switching program on memory card
- Date-controlled holiday program
- 10 year power reserve through lithium battery, for operational reliability even after long power cuts



**SELEKTA 170 top2**  
**Astronomical digital time switch**

- 1-channel weekly astronomical time switch
- Sunset and sunrise calculated to the minute
- Offset function for adjusting sunrise and sunset times (+/- 120 mins)
- Multiple night breaks can be programmed
- Extended country/city list and additional own towns/cities can be added easily
- Programmable via OBELISK top2 programming software or via OBELISK top2 memory card
- Integrated hour counter function (including service interval, e.g. after 5.000 hours)



Where we live should be light and safe, including outdoors. And in order to prevent lighting on terraces, gardens or driveways being permanently switched on, Theben motion detectors ensure that lighting only comes on when somebody approaches. A function that has an effect on uninvited guests : Which burglar wants to be under the spotlight?

## Private outdoor areas. Theben helps provide a sure footing.



### LUXA 103-360

#### Motion detector for flush-mounted ceiling installation

- Small and inconspicuous passive infrared motion detector
- Automatic lighting control based on presence and brightness
- Easy attachment via two clamping brackets
- Large detection area with 7m diameter at 2.5m installation height.
- 2 channel version available, too



### SPHINX 104-360

#### Ceiling mounted presence detector

- Passive infrared presence detector for ceiling mounting in flush-mounted socket.
- Automatic lighting control based on presence and brightness
- Detection range 360°, can be limited using enclosed segments
- Master/Slave function
- RC 104 Pro remote control for the installer (optional)
- RC 104 remote control for the user (optional)
- 2-channel version and surface mounting version available, too





Whether in airports or foyers, classrooms or corridors: Wherever it's busy, it is good to know that lighting and room temperature are reliably controlled. Discreetly installed and optionally connected to a EIB/KNX BUS system, thebenHTS presence detectors record presence and movement of people in the room and use this data to control lighting, heating and air conditioning systems – and it is also good to know that the set-up is really easy thanks to factory presets and remote control.

# Airports and foyers. Theben helps provide light at the right moment.



**thebenHTS ECO-IR 360C NT  
Presence detector**

- 360° presence detector with 2 channels for ceiling mounting and for automatic lighting and HVAC control based on presence and brightness
- Also records slight movements
- Adjustable brightness range from 10 – 1500 lux with self-learning run-on time
- User remote control »click« operates the lighting and controls light scenes
- Rectangular detection range, 8 m x 8 m (installation height 3.5 m)
- Fully- or semi-automatic operation with manual setting for increased energy savings
- Suitable for master/slave and master/master switching
- High switching capacity via inrush current limitation (EVG)

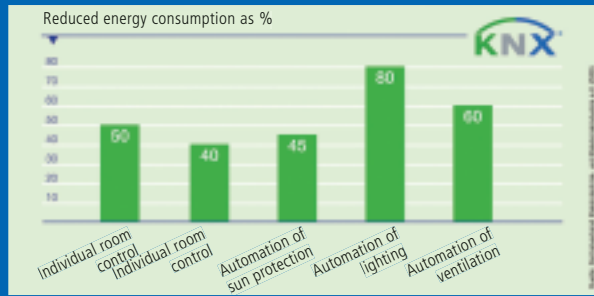


**thebenHTS compact passage  
Corridor presence detector**

- 360° presence sensor optimised for corridors with 2 channels for ceiling installation and for automatic lighting and HVAC control based on presence and brightness
- For brightness- and movement-dependent control of lighting
- Brightness range of 10 – 1500 lux and run-on time of 10 seconds – 20 minutes
- Easy start-up possible via service remote control
- User remote control »click« operates the lighting and controls light scenes
- Rectangular detection range, 30 m x 4 m (installation height 2.5 m)
- Fully- or semi-automatic operation with manual setting for increased energy savings
- Suitable for master/slave and master/master switching

Reduced energy consumption through use of home and building technology systems

Maximum values in the "Potential energy savings through modern electrical installations" study



Bremen University research project (2006) on the subject of energy saving potential using KNX in buildings.

Heating, ventilation, lighting, blinds: The Theben KNX building controller controls everything that belongs in buildings with modern comfort levels – and all in an energy efficient manner and with all components perfectly matched to each other.

# KNX building controller



**SPHINX 331 KNX**  
KNX-Motion detector for brightness dependent and motion dependent lighting control

- 1-channel KNX motion detector including constant light control
- Very flat construction (projects only 5mm from the ceiling) and thus very inconspicuous
- For dimming or switching depending of brightness and motion
- Master / Slave function
- Detection range: 7m diameter (2.8m installation height)
- Power supply form KNX bus voltage
- 2-channel version available, too



**DMG2 KNX**  
KNX 2-way dimming module

- Universal dimmer for the KNX bus installation
- 2 x 300W/VA or 1 x 500W/VA
- Can be extended with the DME2 KNX upgrade device up to 6 channels
- Dimming output upgrade "Dimm Booster" DMB 2 KNX doubles the output power (2 x 600W/VA or 1 x 1000W/VA)
- Can be combined with other Theben Mix-Series devices





At home – that is the place that is beautifully and comfortably designed where you can feel safe and protected. In order to turn this desire into reality, Theben have produced the living comfort control. Whether it's external lighting, blinds control, panic function or deceptively genuine presence simulation: With equally innovative as reliable technology Theben provides for more comfort and greater safety – while using less energy.

## Private houses. Theben helps to save energy.



### LUXOR 400

#### Basic model for living comfort control

- System for building automation of small business premises and detached and semi-detached houses
- Upgradeable system for up to 64 channels with modules for lighting, shutters, blinds as well as time and weather sensor system
- Setting options for central On/Off, panic and presence simulation
- Absolute functionality thanks to "stand-alone" function for each module
- Easy adjustment via LED displays on modules
- 2-wire COM interface for communicating with other modules



### LUXOR 408

#### Basic module for controlling blinds, awnings and shutters

- Control of 4 drives
- Upgradeable system for up to 64 channels, combinable with modules for time control with astronomical program and weather sensor system
- Manual individual, group and central control
- Absolute functionality thanks to "stand-alone" function for each module
- Easy adjustment via LED displays on modules
- 2-wire COM interface for communicating with other modules



# MK Sensors Applications

## Typical product specification in an office environment

### SMALL MEETING ROOMS – UP TO 65% SAVING. CEILING MOUNTED SUPERIOR PIR

- Programmable presence detection for use in open plan areas and offices
- Two photocell settings – Active or Passive  
Active photocell adjusts light levels in response to natural illuminations. Passive (set as standard) holds lights off in bright ambient conditions
- Off Delay between 5 and 35 minutes
- Remote Programmers allow easy commissioning and re-commissioning
- Dual circuit switches perimeter lights which require photocell control

### CORRIDOR – UP TO 80% SAVING. CORNER MOUNTED ULTRASONIC SENSOR

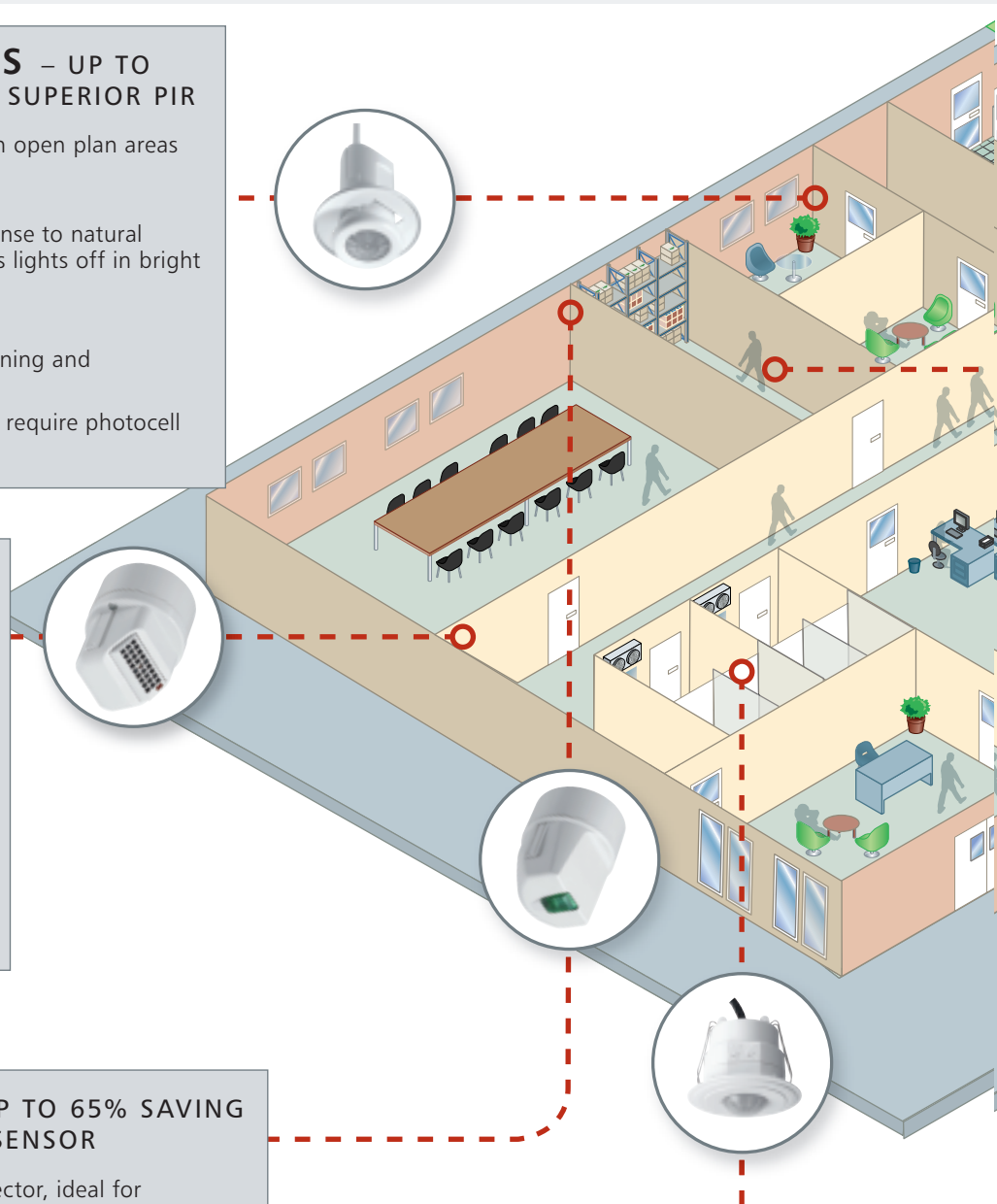
- General purpose directional presence detector with 13m range
- Passive Photocell holds lights off in bright ambient conditions
- Off Delay between 5 and 15 minutes
- Adjustable On and Off Range, which allows low setting during Off mode to avoid lights being activated by traffic passing across the end of the corridor

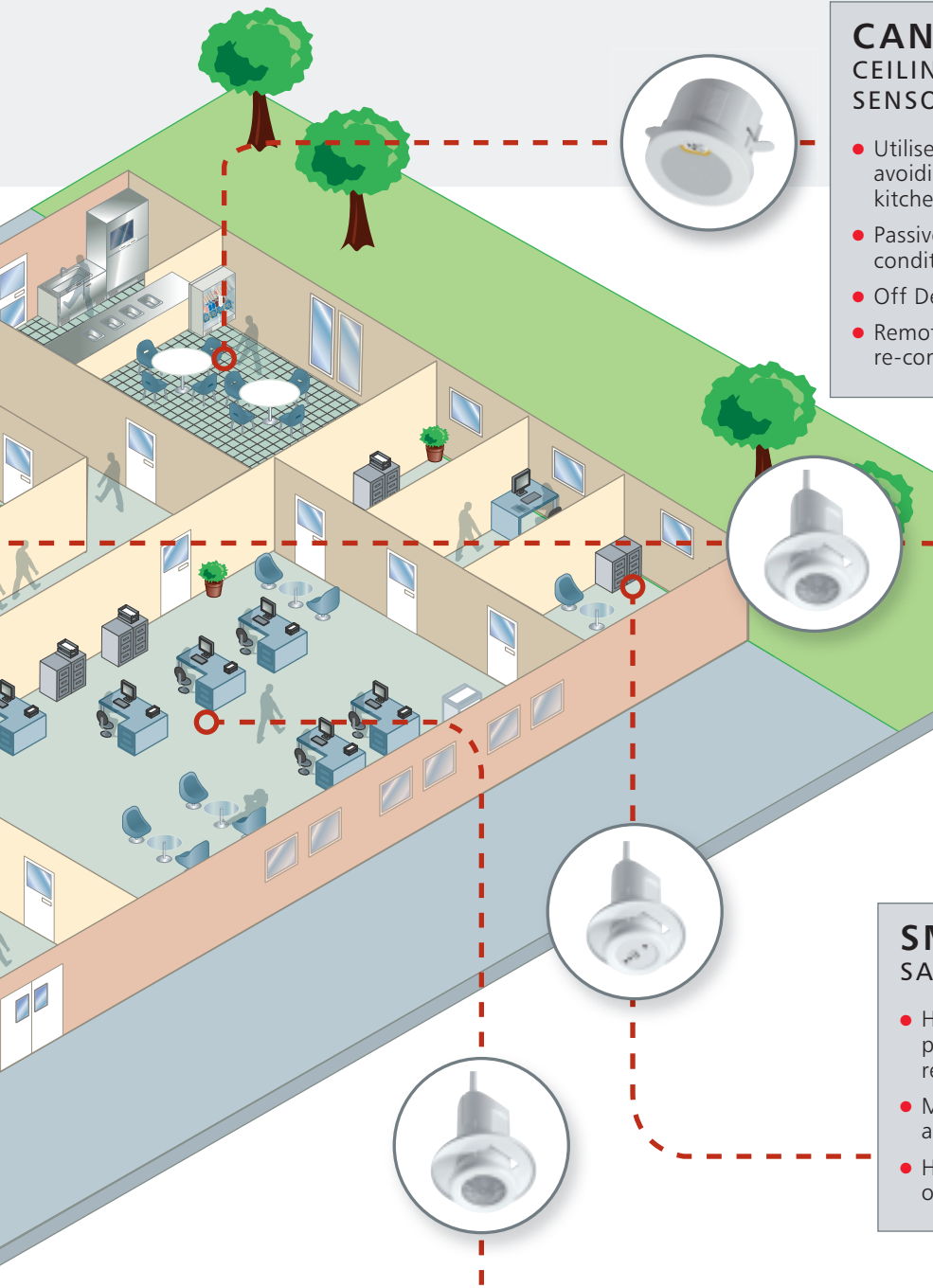
### CONFERENCE ROOM – UP TO 65% SAVING CORNER MOUNTED MICROWAVE SENSOR

- High performance directional presence detector, ideal for conference rooms
- Built in Photocell monitors the controlled space as well as ambient light and all other light contributions
- Can be installed horizontally for wide angle horizontal coverage
- Extremely flexible with two independent sensitivity controls

### TOILETS – UP TO 90% SAVING CEILING MOUNTED SIMPLE FIT PIR

- Cost effective presence detection for lighting in small areas
- Passive Photocell holds lights off in bright ambient conditions
- Off Delay between 5 seconds and 40 minutes





**CANTEEN – UP TO 65% SAVING  
CEILING MOUNTED MICROWAVE DIGITAL  
SENSOR**

- Utilises microwave technology as opposed to infrared, avoiding activation by heat, therefore ideal for use in kitchens
- Passive Photocell holds lights off in bright ambient conditions
- Off Delay between 5 and 35 minutes
- Remote Programmers allow easy commissioning and re-commissioning

**STORAGE CUPBOARD – UP TO 80% SAVING  
CEILING MOUNTED STANDARD PIR**

- Cost effective presence detection for lighting in small areas
- Photocell Off delay of 20 minutes
- Hand-held Controller available for temporary override

**SMALL OFFICES – UP TO 15% SAVING. UNIVERSAL PHOTOCELL**













- High performance regulating and switching photocell for DSI, DALI, Analogue 1-10V and non-regulating ballasts
- Monitors ambient light and adjusts output accordingly
- Hand-held Controller available for temporary override

**OPEN PLAN OFFICE – UP TO 30% SAVING CEILING MOUNTED SUPERIOR REGULATING PIR**






















- Programmable presence detection for use in open plan areas and offices
- Two photocell settings – Active or Passive  
Active photocell adjusts light levels in response to natural illuminations  
Passive (set as standard) holds lights off in bright ambient conditions
- Off Delay between 5 and 35 minutes
- Up to six scenes can be set via user remote control
- Remote Programmers allow easy commissioning and re-commissioning

# MK Sensors Product Selector


## KEY

	Advanced presence detection by passive infrared (PIR) technology		Regulating photocell adjusts luminaire output to maintain constant light levels		Hand-held Controllers provide local user override
	Active presence detection by Ultrasonic or microwave technology		Active photocell switches lights on and off according to ambient conditions		Infrared programming enables easy commissioning and re-commissioning
	Off delay in minutes following the last observed movement after which lights switch off up to 96 hours with K4053		Detection pattern and range in meters under normal operating conditions		Dual circuit option (switching or switching and dimming) available
	Passive photocell holds lights off when area becomes occupied in bright ambient conditions		One Switch Dimming. Manual input to adjust light level or turn luminaires on or off		Scene setting – lights switch on to a pre-programmed scene when area becomes occupied














## MK PIR'S

IMAGE	LIST NO.	DESCRIPTION											
	K5015	Simple Fit PIR with Photocell – Flush 6 Amp	✓		0-40	✓			6m				
	K5016	Simple Fit PIR with Photocell – Surface 6 Amp	✓		0-40	✓			6m				
	K4010	Standard PIR with Photocell – Slim Flush. 6 Amp	✓		20	✓			6m				
	K4011	Standard PIR with Photocell – Surface. 6 Amp	✓		20	✓			6m				
	K4015	Superior PIR with Photocell – Slim Flush. 6 Amp	✓		✓		✓		6m	✓			
	K4016	Superior PIR with Photocell – Surface. 6 Amp	✓		✓		✓		6m	✓			
	K4017	Superior Dual Circuit PIR with Photocell – Flush. 6 Amp	✓		✓		✓		6m	✓		✓	
	K4018	Superior Dual Circuit PIR with Photocell – Surface. 6 Amp	✓		✓		✓		6m	✓		✓	
	K4019	Superior PIR - Slim Flush 9 x DSI Ballasts.	✓		✓		✓		6m	✓			✓
	K4020	Superior PIR – Surface 25 x DSI Ballasts.	✓		✓		✓		6m	✓			✓

## MK PLASTERBOARD FIXING KIT

IMAGE	LIST NO.	DESCRIPTION
	K4054	Plasterboard Fixing Kit

## MK CEILING MOUNTED DIGITAL SENSORS

IMAGE	LIST NO.	DESCRIPTION											
	K4025 BLUE	Ceiling Mounted Microwave Digital Sensor – Flush DSI Blue. 6 Amp		✓	5-60		✓		7m	✓	✓	✓	✓
	K4025 YELLOW	Ceiling Mounted Microwave Digital Sensor – Flush DSI Yellow. 6 Amp		✓	5-60		✓		7m	✓	✓	✓	✓

## MK CEILING MOUNTED DIGITAL SENSORS (CONTINUED)

IMAGE	LIST NO.	DESCRIPTION												
	K4025 RED	Ceiling Mounted Microwave Digital Sensor – Flush DSI Red. 6 Amp		✓	5-60		✓		7m	✓	✓	✓	✓	✓
	K4025 GREEN	Ceiling Mounted Microwave Digital Sensor – Flush DSI Green. 6 Amp		✓	5-60		✓		7m	✓	✓	✓	✓	✓

## MK CORNER MOUNTED ULTRASONIC SENSORS

IMAGE	LIST NO.	DESCRIPTION												
	K4030	Corner Mounted Ultrasonic Sensor with Photocell – Surface. 10 Amp		✓	5-15	✓			6m 13m					
	K4031	Corner Mounted Ultrasonic Sensor with Photocell – Semi Flush. 10 Amp		✓	5-15	✓			6m 13m					
	K4032	Corner Mounted Microwave Sensor with Photocell 20m Range – Surface. 10 Amp		✓	0-20	✓			20m					
	K4033	Corner Mounted Microwave Sensor with Photocell 20m Range – Semi Flush. 10 Amp		✓	0-20	✓			20m					














## MK LONG RANGE DETECTORS



IMAGE	LIST NO.	DESCRIPTION												
	K4035*	Corner Mounted Long Range Detector 30m Range – Flush Mounted.		✓	0-16 0-32	✓			30				✓	
	K4036*	Corner Mounted Long Range Detector 30m Range – Box Mounted.		✓	0-16 0-32	✓			30				✓	
	K4037*	Corner Mounted Long Range Detector 60m Range – Flush Mounted.		✓	0-16 0-32	✓			60				✓	
	K4038*	Corner Mounted Long Range Detector 60m Range – Box Mounted		✓	0-16 0-32	✓			60				✓	
	K4039*	Corner Mounted Long Range Control Unit – Single Circuit. 10 Amp												
	K4040*	Corner Mounted Long Range Control Unit – Dual Circuit. 10 Amp												



\*For long range detectors a control unit is required, each control unit can control up to 2 detectors

All MK Sensors are CE marked.

# MK Sensors Product Selector

MK PHOTOCELL														
IMAGE	LIST NO.	DESCRIPTION												
	K4045	Universal Photocell – Slimline Flush. 6 Amp					✓				✓	✓		✓

MK LONG RANGE CONTROL UNITS		
IMAGE	LIST NO.	DESCRIPTION
	K4051	Two Button Hand-held Controller
	K4052	Multifunction Hand-held Controller

MK PROGRAMMERS		
IMAGE	LIST NO.	DESCRIPTION
	K4050	Hand-held Programmer
	K4053	Digital Programmer



# Case Study



Kylemore College Dublin is enjoying an annual 50% reduction in its electricity bills following the completion of an ambitious project to curb the excessive use of lights in its school .

Following an original enquiry from FEGIME member Richmond Electrical on behalf of electrical contractor A+L Electrical, MK leader in lighting control systems were approved to install presence detectors and photocells throughout various classrooms, practical area's and toilets.

Before the installation, lights in the schools were switched on in the morning and left on all day whether or not they were required. MK's equipment allows the lights to come on only when the presence of occupants is detected. Once occupants leave the area the detectors automatically switches the lights off. Additional photocell equipment ensures lights do not come on when levels of natural light are sufficiently high.

Having secured the contract, MK then had less than 10 days to survey the buildings, identify and manufacture the necessary equipment and then A+L had to install the detectors in accordance to technical guidance notes 4 (regulations required by department of education). A combination of Gold Series microwave, standard and dimmable PIR detectors achieved maximum efficiency in all area's covered by the MK product.

Michael Costello, principal electrical contractor for the project, said: "A combination of cost, superior technology, reputation and ability to install and commission in such a short time frame were the elements that led to us specifying MK."

In particular, the timing of the installation was critical, to ensure us to meet the deadlines imposed by the School Energy programme. MK met the deadlines with time to spare but there was no upheaval during

the installation. In fact the MK engineer did most of the work outside school hours to minimise any disruption.

The principal for Kylemore College said: "We are delighted with the way the system operates. It was a trouble-free installation and I have had nothing but good reports from staff in terms of day-to-day operation.

Lighting control like this helps any buildings need to be environmentally sensitive. It is using the MK lighting control system like above which can reduce your electricity bill by up to 80%. In terms of payback, you will see a return in an investment in just twelve to eighteen months approximately and we will continue to save vast amounts in electricity costs for every subsequent year.

All of MK Electrical's sensor products have been approved and registered with Sustainable Energy Ireland as part of the Accelerated Capital Allowance scheme, which allows a business to a grant for MK lighting controls depending on certain criteria which is illustrated on the SEI website [www.sei.ie](http://www.sei.ie). Any additional information you may require about MK sensors can be found on our website [www.switchonmk.com](http://www.switchonmk.com)



# Simple Energy Saving Solutions

## DIN rail mounted time switches

# hager

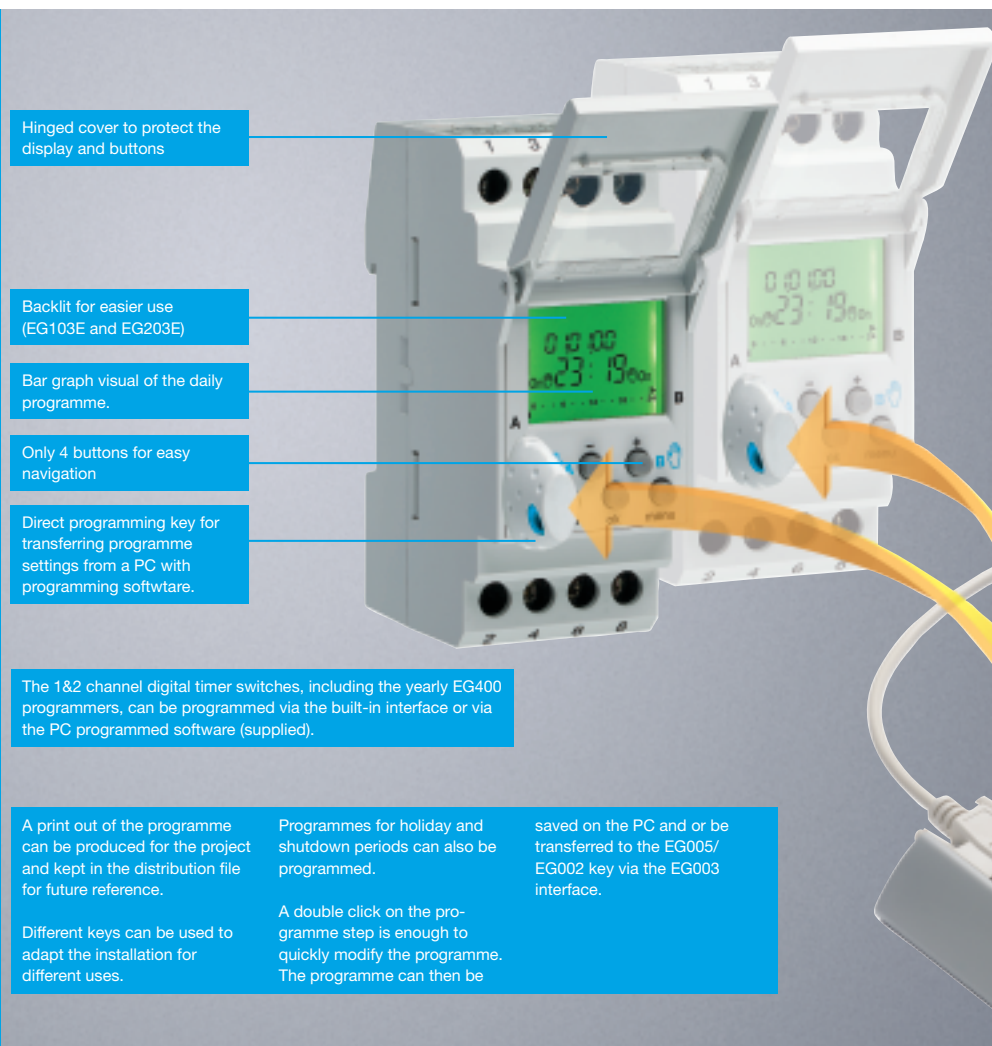
Time based switches such as time switches and programmers provide selectable on-off periods during the day, week and year or a combination of all to control various electrical loads.

Simple and effective energy savings can be achieved by setting these devices so that the various loads are only switched on when they are actually needed, thereby saving unnecessary usage of energy.

The hager range of timers include electro-mechanical time switches with an analogue display, and have one channel for daily or weekly programming. These products are ideal for controlling loads such as lighting, heating and shop window displays etc.

Digital time switches have been developed with more programmable flexibility for daily, weekly and yearly timing functions where more varied level of control is required in domestic and commercial applications.

An optional Programme Key is available on some models to provide easy backup to PC and quick re-installation of the programme.



Electromechanical Time switches (Din Rail Mounted)							2 Module Analogue Time switches NEW			
Technical Characteristics	EH010	EH011	EH110	EH111	EH171	EH191	EH209	EH210	EH211	EH271
Width in modules 17.5mm	1	1	3	3	3	5	2	2	2	2
Voltage Supply	230V	230V	230V	230V	230V	230V	230V	230V	230V	230V
Operating Cycle	24 hrs.	24 hrs.	24 hrs.	24 hrs.	7 days	24 hrs. / 7 days	24 hrs.	24 hrs.	24 hrs.	7 days
Minimum Switching	15 min	15 min	15 min	15 min	2 hrs.	15 mins / 2 hrs.	30 min	30 min	30 min	3.5 hrs.
Supply failure reserve	-	200 hrs.	-	200 hrs.	200 hrs.	200 hrs.	-	-	200 hrs.	200 hrs.
Manual Override	Auto / On	Auto / On	Auto / On / Off	Auto / On / Off	Auto / On / Off	Auto / On / Off	On / Off	On / Off	On / Off	On / Off

Digital Time switches (Din Rail Mounted)										
Technical Characteristics	EG010	EG071	EG110	EG170	EG103B/E	EG171	EG210	EG270	EG203B/E	EG470
Width in modules 17.5mm	1	1	3	3	2	3	3	3	2	5
Voltage Supply	230V	230V	230V	230V	230V	230V & DC	110 / 230V	110 / 230V	230V	230V
Operating Cycle	24 hrs.	7 days	24 hrs.	7 days	7 days	7 days	24 hrs.	7 days	7 days	7 days
Program Steps	5	20	20	20	56	20	20	20	56	84
No. of Channels	1	1	1	1	1	1 (pulsed)	2	2	2	4

**Horstmann.**  
Together,  
we're in control.



**HORSTMANN**



H11XL



H17XL



H21XL



H27XL



H37XL



H47XL

The New Horstmann second generation ChannelPlus XL range of Timeswitches and Programmers offer up to Four independent channels and feature improved display and easier programming.

**What is a programmer?**

Programmers allow you to set 'On' and 'Off' time periods. They allow the hot water and heating to come on and go off at different times. Set the 'On' and 'Off' time periods to suit your own lifestyle saving you energy and money!!

**Horstmann ChannelPlus XL Range**

- Second generation programmers that offer up to four independent channels and feature improved display and easier programming.
- 5 Year Guarantee
- Unique 4 channel programming
- 3 Amp rated
- Single, Two, Three and Four channel versions
- 24 hour or 7 day programming
- Large, easy to follow LCD displays, give clear programme information
- Up to 3 ON/OFF periods per channel in each 24 hour operation
- On 7 day models different settings for each day of the week
- Programmable Holiday setting can be set in advance of departure for any period of time.
- 1 or 2 hour boost and advance on each channel
- Mains powered with battery back up

Model	Single Channel	Two Channel	Three Channel	Four Channel	24 Hour	7Day
Channel Plus H47XL				✓		✓
Channel Plus H37VXL			✓			✓
Channel Plus H37XL			✓			✓
Channel Plus H27XL		✓				✓
Channel Plus H27ZXL		✓				✓
Channel Plus H21XL	-	✓			✓	
Channel Plus H17XL	✓					✓
Channel Plus H11XL	✓				✓	

# SANGAMO

The Powersaver Range is primarily used, for the control of electric water heaters, although the range can be used for controlling panel heaters, security lights, underfloor heating and towel rails - to name a few.

The Powersaver range is popular with local authorities, private builders and electrical contractors for the following reasons:

- reliable and simple to use
- quality guaranteed
- Suitable for multiple applications
- Energy efficient and saves on fuel expenditure
- 2 year guarantee from date of manufacture
- Aesthetically pleasing

**BOOST:** PSB - Boost period 30 minutes, 1 & 2 hours (user selectable).

**DAILY** PSD - Boost period 30 minutes, 1 & 2 hours (user selectable) also 24hr with 3 programming On/Off periods per day

**WEEKLY** PSW - Boost period 30 minutes, 1 & 2 hours (user selectable) also 5 day / 2 day with 3 programming On/Off periods for weekends.

**24/7** PS24/7 - Boost period 30 minutes, 1 & 2 hours (user selectable) also 7 separate days with 3 independent programming On/Off periods per day.



## POWERSAVER DUAL



The Powersaver Dual bridges the gap between the bulky, aged electromechanical immersion controllers and the complicated 'bells & whistles' digital versions.

The review button allows ON/OFF times to be checked & there is automatic GMT/BST changeover.

There is a 1/2 hour, 1 hour & 2 hour boost function with a digital display countdown clock, allowing the user to clearly see boost times. There is also a programmable boost function for further end user convenience; this program is deliberately limited to a maximum of 2 hours, meaning expensive electricity is not being wasted during peak times.




# blade

*The Fast and Hygienic Hand Dryer*

**Ideal for Hotels, Hospitals, Nursing Homes,  
Bars, Leisure Centres & Offices**

## Energy Efficient

Other hand dryers are normally 2300W.  
The  blade hand dryer is only 650W.

## Dries Hands Twice as Fast

Other hand dryers can take up to 45 seconds to dry hands.  
The  blade hand dryer dries hands in 10 - 12 seconds.

## More Hygienic

'No touch high speed' hand drying ensures complete hygiene.  
Damp hands carry bacteria.



**SAVING** over Paper Towels  
per 1000 Uses  
€17.00 minus €0.20 = €16.80

**SAVING** over Conventional Hand  
Dryers per 1000 Uses  
€3.30 minus €0.20 = €3.10

**More Energy Efficient • Cost Savings • Improves Hygiene  
Environmentally • Easy to Maintain**





# Renewable Solutions

Glen Dimplex continue their development in the renewable energy arena with a range of solutions complementing their existing heat pump products.

The Glen Dimplex Solar Kit provides an all-in-one package for homeowners and developers looking at meeting the new building regulations.

The Xpelair brand offers a breath of fresh air with their range of fans and heat recovery ventilation products.

## Dimplex Solar Water Heating

In today's environmentally challenged world, it's time to rethink our heating. Dimplex has expanded its renewable energy portfolio with the launch of a new solar water heating solution – Solar Eclipse. Every year the sun provides over 8000 times more energy than we consume worldwide. Even in Ireland, we receive as much as 1,000 kW.h/m<sup>2</sup> of solar radiation energy every year, enough to provide up to 60% of the domestic water heating needs for a typical home. With new building regulations aimed at reducing carbon emissions from new buildings and homeowners becoming increasingly environmentally aware, the Dimplex Solar Eclipse hot water system is a sustainable energy solution for the future, with a range of packages designed to provide low carbon, low cost water heating for new and existing homes.

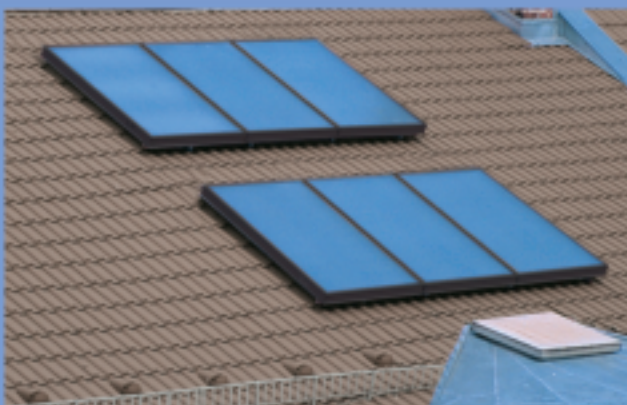
The new Dimplex solar range consists of 12 pre-packaged kits, making specification, purchase and installation easy, while each of the system components has been carefully selected for its quality and suitability for the Irish climate.

### The range consists of:

- 2, 4 and 6 m<sup>2</sup> flat plate solar collector kits, heat transfer system and full range of installation accessories
- Purpose designed solar hot water cylinders with high efficiency coils, fully optimised for solar water heating.
- Choice of roof mounting options: integrated kit, on-roof suitable for slate, tiles and flat roof
- Separate control and pump station
- 25-year solar cylinder and 10-year solar collector warranties



On roof solar collector



Integrated solar collector



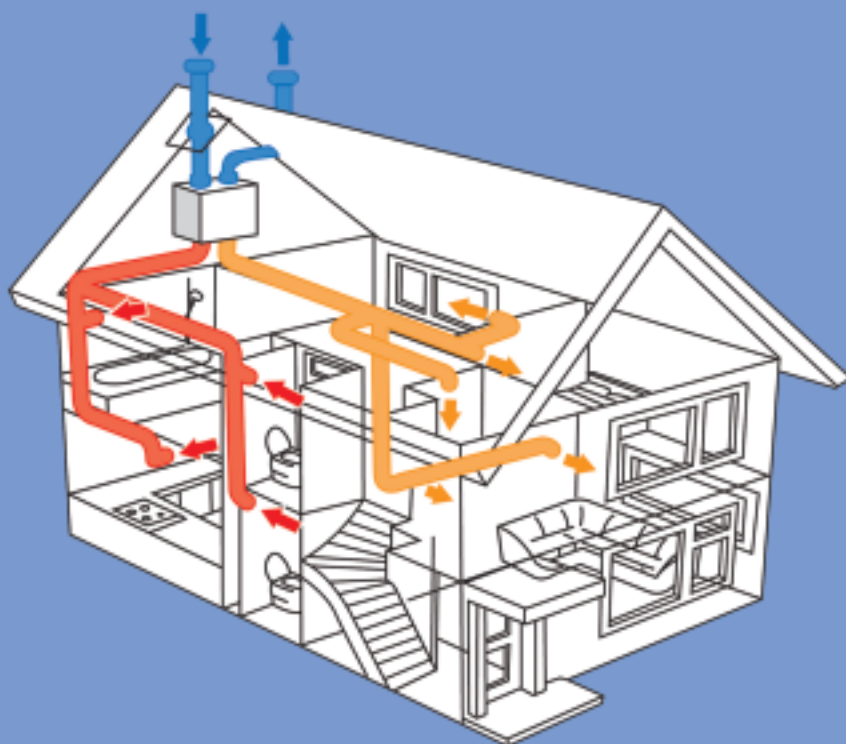
# Heat Recovery

## Welcome to Xpelair Heat Recovery

Over 50 years Xpelair has earned an enviable reputation in world-class domestic, commercial and industrial ventilation leading the way with innovative technologies and style to ensure the air we breath is clean, fresh and healthy. Xpelair products are specified and distributed in over 80 countries – and in Ireland since 2008 by Glen Dimplex. Their ease of installation and reliability has gained many international Government contracts and firmly retained their position as the specifier's choice.

Today, the Xpelair range addresses the issues of safety in the home, air-tight buildings, energy efficiency, passive smoking and the need to remove carbon emissions – all with intelligent products that meet specific needs. The range anticipates forthcoming Building Regulations, environmental legislation and changing construction methods.

Xpelair's dedicated specification team is ready to provide advice on field applications advice and to work with installation providers to ensure fast and hassle-free installations. If required, a design service is also available to provide a specification from your plans. All Xpelair product information is available on-line at [www.dimpco.ie/xpelair.htm](http://www.dimpco.ie/xpelair.htm)



### What is Heat Recovery?

- An energy-efficient process that helps keep an air-tight home cosy and well ventilated

### How does it work?

- Stale, damp and warm air is removed from 'wet' areas of your home, such as the kitchen and bathrooms.
- Fresh air is drawn in from the outside and the stale air is used to heat this fresh air in a heat exchanger.
- The stale air is then disposed of through an exhaust vent and the fresh, now warm air is introduced into your home.

### What are the benefits?

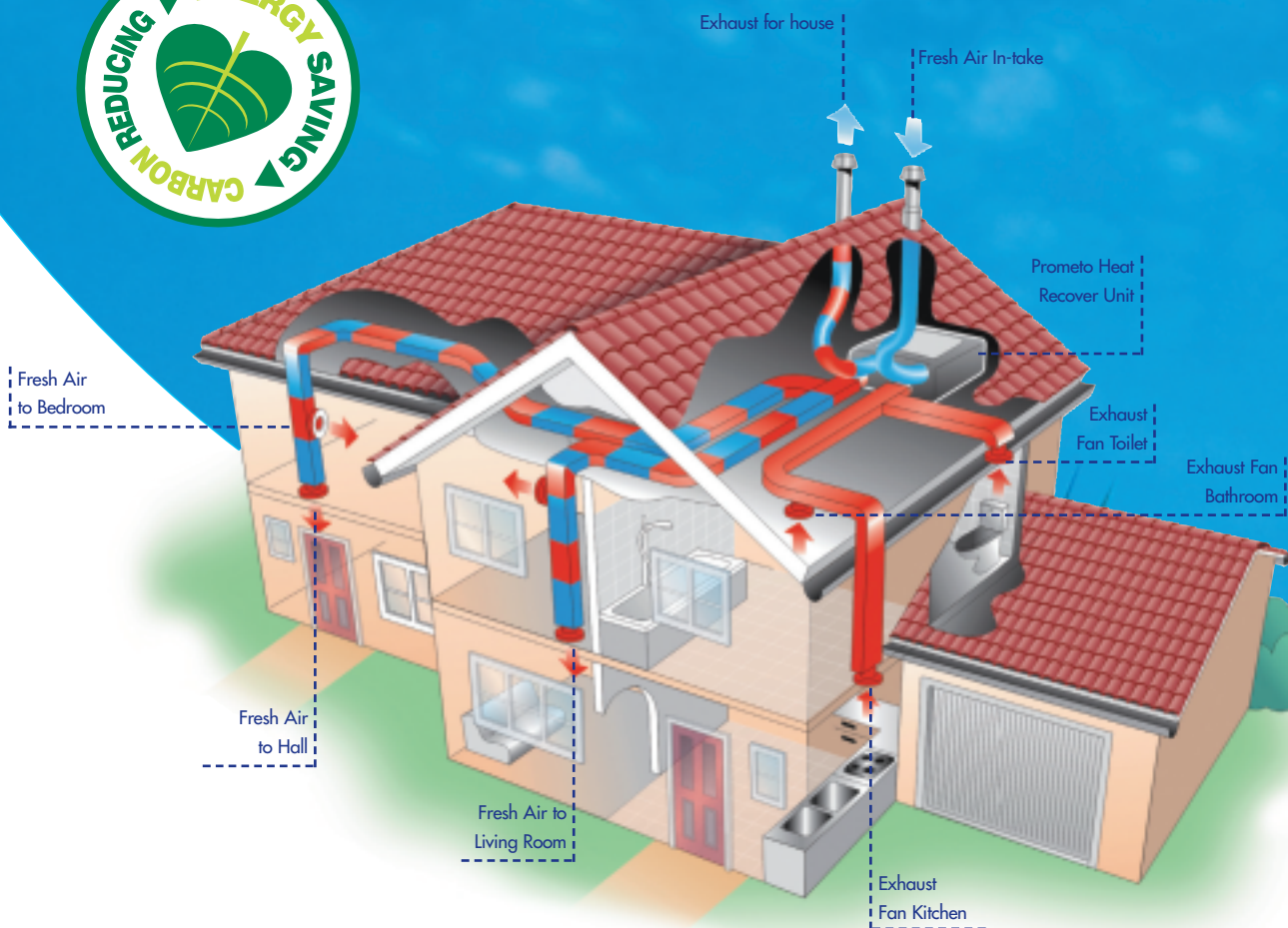
- Improves the energy-efficiency of your home
- Reduces heating costs
- Keeps your home 'fresher'
- Lowers humidity levels and reduces damp / harmful bacteria
- Provides health benefits for allergy sufferers
- Is environmentally friendly

### What are the products features?

- Xpelair's Xcell 270 is a mechanical ventilation and heat recovery unit
- Extracts stale air from the kitchen and up to seven additional wet rooms
- Offers 95% heat exchange e-fficiency
- Has an UltraDC, low-energy, long-life motor
- Meets energy standards 'best practice' criteria
- Is part of the Xpelair CarbonLite range
- Has an automatic summer bypass.

## THE BENEFITS OF HEAT RECOVERY VENTILATION

- Healthy Home: less pollen, less allergies and less dust mites.
- Comfort: constant fresh air supply all day everyday.
- Helps limit and eliminate Radon build up.
- Energy Savings.
- Draught free home.
- Quieter home as windows can be kept closed.
- No individual fans extracting costly heated air directly outside.
- No fungal or mould growth in bathrooms and bedrooms.
- No condensation on windows.
- Extra security as windows can be kept securely closed
- Enhanced house value after 2009, when BER certificates are mandatory



*"Its Cool to be Green"*

### Important Note

Whole house heat recovery ventilation by means of a heat recovery unit is not in itself a heating system. It recovers a percentage of the heat energy passing through it that would otherwise be wasted to the atmosphere.



## VORT PROMETEO HR400 HEAT RECOVERY UNIT

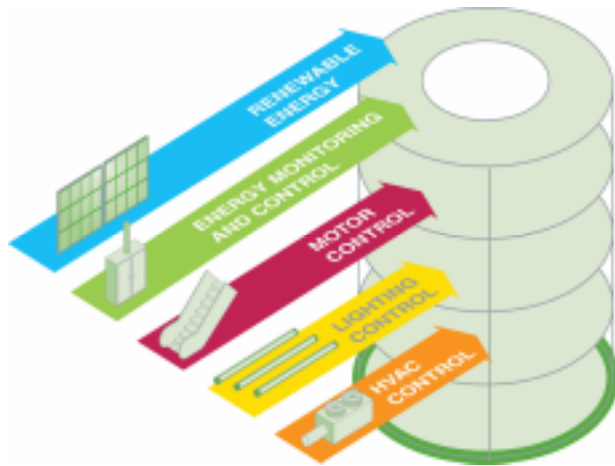
SAP APPENDIX Q ELIGIBLE

### THE FEATURES OF PROMETEO HR400

- SAP Appendix Q Eligible up to 92% efficiency
- Approved for extract from Kitchen + 8 Wet rooms in Dwelling
- Can be mounted vertically or horizontally
- Fitted with PE (polyethylene) Counter Flow Heat Exchanger
- Fitted with centrifugal fans with DC brushless energy efficient motors
- Fitted with F5 Filters on the Fresh Air inlet and Extract
- Optional F7 filters for additional protection against impurities available
- Built-in Frost Protection
- Built-in Summer By-Pass
- Supplied with RF Controller, displays Working Mode, Speed Setting, Timer Setting, Average Temperature, Relative Humidity, CO<sub>2</sub> levels, Time and Date. Also incorporates Filter change indicator and Fault indicator
- Fully automatic, manual forced summer by pass or full manual control at the press of a button
- Adjustable humidity and CO<sub>2</sub> settings
- Complies with 2008 Part F – Ventilation Building Regulations
- Easy maintenance for changing Filters or cleaning Heat Exchanger
- Guaranteed for 2 Years



## Up to 30% energy saving



### Enabling products

- **Lighting control**  
Dimmers, Timers, Movement detectors
- **HVAC**  
Variable Speed Drives for pumps & fans
- **Energy Management**  
Power Factor Correction, filtering & Meters
- **Motor Control**  
Intelligent Motor Control (iMCC), VSD, HMI, PLC's for optimisation management

**Building Renovation can yield up to 30% energy savings**



**3 key areas: HVAC, lighting and integrated building solutions**

### Management systems

- Power monitoring and analysis
- Process supervisory systems

### Added value services

- Site audits
- Data collection and analysis
- Remote monitoring and optimisation

**Buildings consume 20% of total energy**

**Motors consume 35% to 60% of energy usage**



Variable Speed Drives

Compact NSX

Metering Solutions

Power Factor Correction

**Make the most of your energy**

# Gain energy insight and control with PowerLogic meters™

## PowerLogic PM200

### Power and Energy Meters



The basis of any energy efficiency project is the energy meter. Without accurately measuring your energy usage you cannot make cost effective improvements. The PowerLogic PM200 series power meter is an easy-to-use, cost effective meter that offers the basic measurement capabilities.

#### Features:

- Compact design (96 x96mm), 50mm mounting depth
- Easy installation: mounted without tools (just 2 clips)

#### Ease of use

- Bright, anti-glare, backlit LCD display
- Fast setup via display or software

#### High accuracy metering

- Active energy certification under IEC62053-21
- Class 1.0 accuracy
- 2 outputs for kWh and kVARh pulsing (PM200PMG)

#### Typical applications

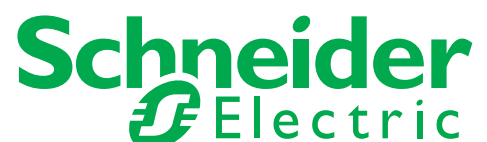
- Energy savings
- Sub-bill tenants for energy costs
- Allocate energy costs to departments or processes
- Reduce peak demand surcharges
- Reduce power factor penalties

Complete with power, demand, energy, power factor and frequency measurement, the PowerLogic PM200 series meters are available in three versions:

PowerLogic PM200MG: basic version

PowerLogic PM200PMG: basic + two pulse outputs

PowerLogic PM210MG: basic + one RS-485 port (Modbus)



## Power Factor Is Simple

As with any equipment, an electrical system handles its job to some degree of efficiency ranging from poor to excellent. The measure of electrical efficiency is known as Power Factor.

The energy supplied to industrial consumers is divided into two components: kW, the energy used to perform work; and kVAR, which is the reactive energy used to energise magnetic fields. A combination of both types of energy is taken from the supply network and both contribute to system losses. This combined energy or power taken from the system is referred to as kVA (kilo volt amperes). Power factor is defined as the ratio of useful energy (in kW) and the total energy taken from the system (in kVA).

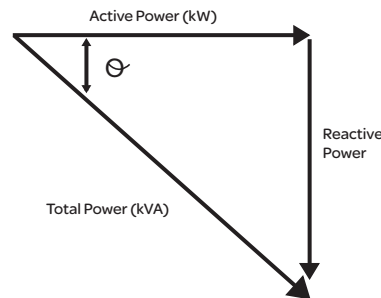
Inductive reactive energy is negated by the installation of appropriately sized power factor correction equipment. Power

factor is one of the most misunderstood areas of electrical engineering, yet it is really very simple. Plant and equipment most likely to contribute to poor power factor are those requiring the creation of a magnetic field to operate, such as electric motors, induction heaters and fluorescent lighting. All these types of devices draw current that is said to lag behind the voltage, thus producing a lagging power factor.

Capacitors, used in most power factor correction equipment, draw current that is said to lead the voltage – hence producing a leading power factor. If capacitors are connected to a circuit that operates at a nominally lagging power factor, the extent that the circuit lags is reduced proportionately. Circuits having no resultant leading or lagging component are described as operating at unity power factor and therefore the total energy used is equal to the useful energy.

### Power Factor:

A measure of efficiency.  
The ratio of Active Power (output) to Total Power (input)



$$\begin{aligned} \text{Power Factor} &= \frac{\text{Active Real Power}}{\text{Total Power}} \\ &= \frac{\text{kW}}{\text{kVA}} \\ &= \text{Cosine } (\vartheta) \end{aligned}$$

A power factor reading close to 1.0 means that electrical power is being utilised effectively, while a low power factor Cosine (ϑ) indicates poor utilisation of electrical power

So, let us consider the effect of reactive energy on the system. Reactive energy substantially increases the energy losses on the local and national supply networks, including the users' own installation. This increased loss also applies to the users' own transformers if they are high voltage consumers. Reactive energy also has the undesirable effect of reducing the capacity of the network and transformers.

### PFC: Analogy



$$\begin{aligned} \text{Power Factor} &= \frac{\text{Beer (kW)}}{\text{Mug Capacity (kVA)}} \\ \text{Foam} &= \text{Reactive Power (kVAR)} \\ \text{Beer} &= \text{Real Power (kW)} \end{aligned}$$

Capacitors provide the Foam (kVar), freeing up Mug Capacity so you don't have to buy a bigger mug, so you can pay less for your beer!

From the environmental point of view – and remember, that is what has driven the Kyoto agreement – the additional losses and the provision of the reactive energy itself, require an unnecessary increase in output from the power stations. This results in higher carbon dioxide (CO<sub>2</sub>) emissions.

The inefficient use of energy ultimately means increased costs for everyone. Many consumers already have power factor correction equipment installed, but some of this inevitably does not function correctly. Now that reactive charges apply, it is worthwhile getting existing equipment checked, maintained and tested to ensure it is adequately sized to meet the penalty levels now being imposed.

The benefits of installing power factor correction equipment are very clear. Electricity costs are reduced, sometimes by thousands of Euro each year. Reduced power system losses means a reduction in the emission of greenhouse gases and also the depletion of fossil fuels in the case of coal-fired stations. The reduced electrical burden on cables and electrical components leads to increased service life. Finally, by using power factor correction equipment, additional capacity is created in the users' systems for other loads to be connected.

In short, the installation of power factor correction equipment can bring users bigger cash savings in the short, medium and long term. The environment will benefit too!

# Energy efficiency a global approach

## Varset

### Power factor correction cubicles

Varset a complete solution in Power factor correction in standard, overrated and detuned cubicles. Varset enclosures, the solution that can be directly connected or retrofited on site and fit all network configurations.



### The Offer

- ❑ 2 variants with or without circuit breaker
- ❑ 100% factory tested
- ❑ Simplified installation
- ❑ Complies with all relevant international standards

### 100% Reliability

- ❑ 15 year (130,000 hour) service life
- ❑ Maintenance free static capacitors

### 100% Safety

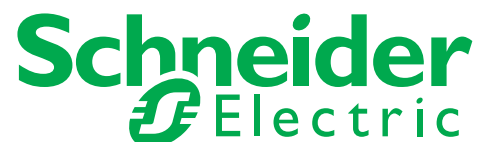
- ❑ A patented design, the only one of it's kind in the world; 100% warning of possible internal or external faults
- ❑ Maximum fire resistance (self extinguishing)

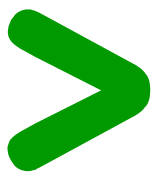
### 100% Green

- ❑ Varplus<sup>2</sup> capacitors comply with the ROHS directive
- ❑ Varplus<sup>2</sup> contains no liquid substance
- ❑ Rectiphase is ISO 9001 and ISO 14001 certified

### Power factor correction, a key element

- ❑ Optimise power consumption
- ❑ Reduce electricity bills
- ❑ Reduce premature ageing of equipment
- ❑ Maximise process performance
- ❑ No need for equipment oversizing





# Understanding and reducing energy usage using Variable Speed Drives

It is estimated that 25% of all electrical energy (World Wide) is consumed by electric motors. Over 85% of these motors are utilised in pump, fan & compressor applications.

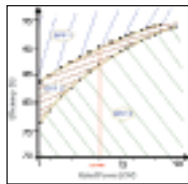
So this is an excellent place to look for significant energy savings particularly when the majority of the spend on a motor over its lifetime will actually be used on the energy it consumes.

If we look at the most common examples of pump and fan applications, (particularly) in older installations we find that speed control is achieved using valves or dampers. Imagine trying to control the speed of your car with one foot on the accelerator and the other foot on the brake simultaneously and you get a sense of what a considerable waste of energy this method is.

There are two main methods of optimising your motor installation to reduce your energy usage,

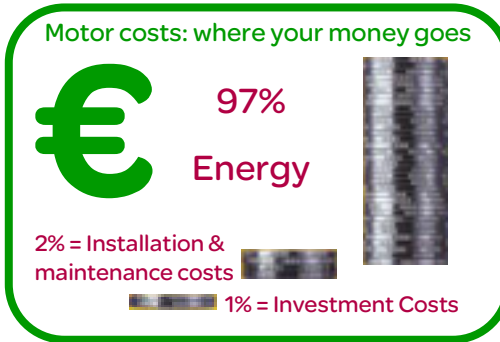
- use a Motor with higher efficiency

**> up to 10% savings**

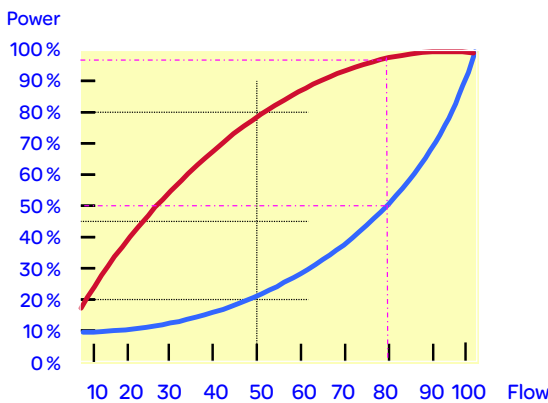


- use a speed drive to control your motor

**> up to 50% savings**



### The Fan Power Curve



## VSD's and energy saving

As we have seen using mechanical methods to control motors is extremely inefficient. If we look at the example shown (left) using the fan power curve, you can see that if we operate a motor at 80% flow rate the energy consumed is about 97% of the rated power (red line – using damper control). However if we use a VSD to control the speed, the energy consumed reduces to 50% of the rated power (blue line). VSD's will dramatically reduce the energy being supplied to the motor rather than restricting the flow of a process.

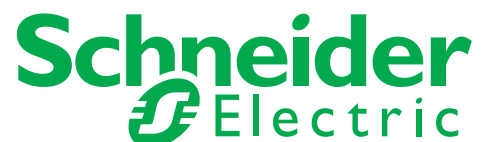
Using VSD's with centrifugal pumps and fans you can calculate that the energy consumed is proportional to the cube of the speed. A small reduction in speed can thus generate large energy savings using VSD's.

Other advantages VSD's offer include:

- Less components required
- Flexibility of use
- Reduced starting current
- Reduced mechanical stress



Make the most of your energy



# Altivar 312

0.18kW to 15kW

VSD's for universal applications up to 600V

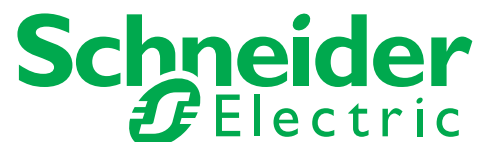


- ❑ Enhanced communication: CANopen daisy chain, Modbus, DeviceNet, & Profibus DP
- ❑ Simplified user interface
  - Setup via Bluetooth® (inc mobile phone)
  - Intuitive local control
  - In-box configuration (without power)
  - Copy paste programming tool
- ❑ Auto-tuning and integrated EMC filter
- ❑ New programming software
- ❑ Additional conformal coating on PCB's

## Altivar VSD solutions for all applications

from 0.18kW to 10MW

- ❑ Comprehensive Altivar product range
- ❑ Custom build IP54 cabinet (ATV61/71/1000)
- ❑ IP54 Panel mounted variants
- ❑ 230V/400V/500V/& 690V supply options
- ❑ Embedded Modbus & CANopen<sup>(\*)</sup>
- ❑ Open communication protocols to all major networks, Modbus, CANopen, DeviceNet, Ethernet, Profibus DP, Lonworks, BACnet, METASYS N2, & APOGEE FLN



## ABB Softstarters – the complete range

ABB offers wide ranges of softstarters to cover every customer's need for solutions. The complete softstarter range covers all motor applications from 3 A to 1810 A used in a main voltage between 208 V to 690 V AC.

PSR The compact range, 3 A to 105 A

PSS The flexible range 18 to 300 A. (Inside Delta 515 A)

PST(B) The advanced range 30 to 1050 A. (Inside Delta 1810 A)

### Why Softstarters?

#### Benefits for the electrical network

- Reduces voltage drops on network
- Minimizes starting currents
- Eliminates current spikes
- Allows optimization of cabling

#### Offer alternative for conventional

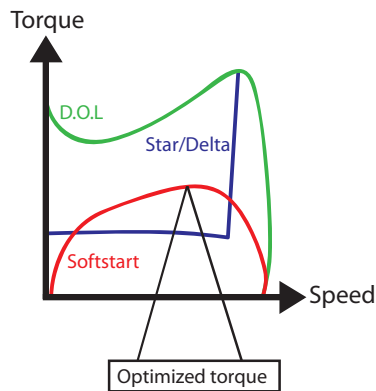
- Y/D starter

#### Mechanical benefits

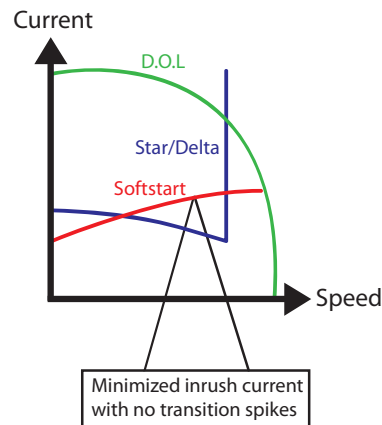
- Minimizes stress on transmissions like gearboxes, belts and bearings
- Minimizes maintenance time and cost, extends the life of the equipment
- Limits the pressure waves in pump systems (i.e. water hammer)



### Starting Torque



### Starting Current



### Normal Start Applications

(Class 10 = Short/Medium starting time)

- Pumps
- Compressors
- Conveyor belts
- Elevators
- Escalators
- Bow thrusters
- Heavy Duty Start applications (Class 30 = Long starting time)
- Ventilators (Fans)
- Crushers
- Mixers, Stirrers
- Mills
- Centrifuges

### PSR Applications

- Bottling line (Conveyors)
- Oven Line (Conveyors)
- Food processing (Mixers)
- Liquid processing (Mixers)
- Palletizers (Presses)
- Size Reduction (Presses)
- Milling (Machining)
- Shapers (Machining)
- Wood Profiling (Machining)
- Car wash (Rollers)
- Electric Hoists (Lifting)
- Automatic Storage Systems (Lifting)
- Industrial Pumps
- Industrial Fans



**Control of industrial installations**

Thanks to the eight independent inputs of ATT-81, maintainers of industrial plant can be informed through SMS, fax or e-mails, of possible faults or installation problems. There's the possibility to define different receivers based on the type of alarms, involving time by time the appropriate person (heating or conditioning installation, machineries, external gate...). Setting the inputs as analogue it's possible to receive via SMS the main parameters of the installation (voltage, current, pressure, temperature...) and eventually receive alarms if one of them goes beyond the set threshold (minimum voltage, overheating...). Output contact can be used for the alarm inhibition.



**Control of the public lighting systems**

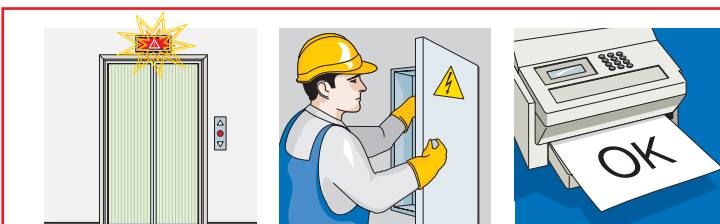
It's possible, with the combination of ATT-22 or ATT-81 with the autoreclosing unit F2C-ARI in event of fault, to receive, at the right time, the out-of-service signalling of the installation after the failure of the three reclosing attempts of the F2C-ARI. It's possible, thanks to these functionalities, optimize the maintenance interventions, reduce the management cost and improving, at the same time, the continuity of service. Alarms and commands can be linked to the time period: day and night can be managed in different ways.

**Vending machines**

To guarantee an adequate profit to the vending machines owner it's necessary to limit the number of out-of-service occurrences. It's essential that, in case of out-of-service, the maintenance service is informed in real time on the type of faults in order to react in the most suitable and fastest way. Combining a vending machine with ATT-81 module, (eventually equipped with an external antenna if the cover is shielded), it's possible to guarantee an immediate analysis of the fault and the dispatch of the signalisation to the maintenance service.

**Petrol stations**

Some petrol stations subscribe assistance contract 24h/24h; nevertheless during the night the station is unsupervised and a possible fault can compromise self-service refuelling during the same night and the next morning. Based on this situation the mounting of an ATT-81 module in the main distribution board can reduce considerably the management costs increasing, at the same time, service continuity. The ATT-81 allows sending automatically a message to the qualified and suitable maintenance service.



ATT records the technical faults of controlled utilities sending an SMUTS or a fax straight to the maintenance company. A second message informs that the electric utility has started running properly again. This ATT application allows remote monitoring of industrial installations and machines, boilers, lifts, freezers and refrigerators counters, vending machines, etc.



If there is an interruption in the power supply of unsupervised plants, ATT sends a warning to the list of authorized users, triggering, at the same time, the motorized command, which resets the circuit-breaker and restores the power supply.

**Control of residential installations**

Remote management of electric devices is an increasingly frequent requirement in the residential and tertiary sectors. At the same time, the remote control and command of plant utilities are indispensable functions in numerous industrial processes, particularly in unsupervised ones.

ABB's new ATTs, modular GSM terminals, fulfill installation requirements ensuring the remote monitoring of inputs and outputs via mobile phone. In particular, the ATT-22 version consists of a control module with two outputs and two inputs for residential, tertiary and industrial installations, while the ATT-81 alarm module, with eight inputs and one output is suitable for monitoring alarms and conditions in tertiary and industrial installations. Information about the status of inputs and outputs is communicated via SMS, free rings or by sending a fax, according to the device settings.

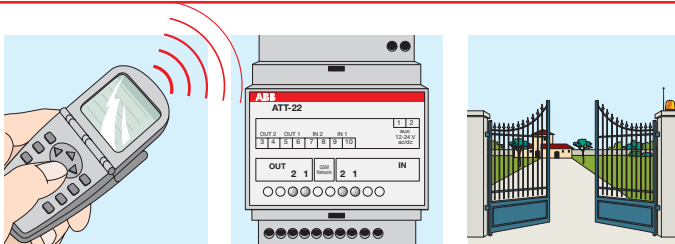


**Open the gate of a property**

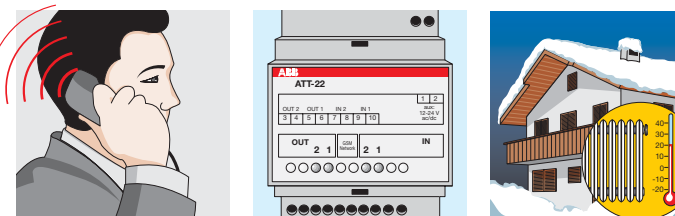
Using one of the two contacts of ATT-22 to command the gate opening, all the owners, and only them, can have the possibility to open the gate with a simple "free ring" from their mobile phone. It's enough, to add or delete an user (for example when a new owner arrives or an old one relocates), adding or removing his/her mobile phone from ATT phone-book. The use of the gate can be bound to exact time slots: for example, laundry and gardener can open the gate only from Monday to Friday and from 8:00 to 12:00. In addition, it's possible to provide expiring permissions: a residence or a hotel can give permissions to users only for the stay period. When the stay finishes the user's number will be automatically delete.

**Control of the holiday home**

With ATT-22 it's possible to switch ON, remotely, the heating of the holiday home with a simple "free ring" or a SMS. If the boiler is blocked or in case of power failure ATT-22 will send an alarm to the owner or to a maintenance service which can suddenly intervene. In combination with the multipurpose device F2C-ARI it's possible to make, remotely, three reclosing attempts in the event of a fault.



No more keys, remote controls or cards! With free ring from mobile phone or also from the fixed telephone, authorized users can send ATT a command to open gates and other types of barriers. It is particular suitable for installation in large residential buildings, hotels, residential facilities, holiday villages, etc.



Freezing holiday homes? Just bad memory! With a ring or an SMS from your mobile phone to ATT you can switch on the heating system a few hours or a few days before your scheduled arrival or keep it running all the time; if the boiler shuts off ATT sends a warning SMS.

## What is Home Easy?

Home Easy is a wirefree range of products designed to remotely control your home.

The future is here now! Home Easy will add a new dimension to your daily living. This revolutionary new technology allows you to operate:

- ✓ Lighting
- ✓ Appliances (ON/OFF)
- ✓ TV/DVD/SATELLITE
- ✓ Heating
- ✓ Door Access

All of these can be operated from a single hand held remote control from anywhere in your home. Even if you are away from home, you can still operate the above by simply texting from your mobile phone from any world wide location!

## How does HomeEasy work?

Home Easy works by sending wireless signals from battery operated transmitters, ie remote controls, PIR's (Passive Infra Red) and various switches, to either plug-in or wired receiver units. The Home Easy products have been designed to give you an easy way to make life at home effortless and reduce the amount of energy wasted in your home:

- ✓ Effortless Control
- ✓ Turn on any light
- ✓ Dim your lighting
- ✓ Pre-set lighting moods
- ✓ Security
- ✓ Programme the Home Easy system to automatically set lights to go on or off at pre set or random times.
- ✓ Disabled & Elderly
- ✓ Turn on appliances or lights, in awkward to reach sockets, such as those behind furniture.

## Energy saving features:

- ✓ Dim your lights to reduce power consumption.
- ✓ STOP wasted Stand by power at the touch of a button, saving you money!
- ✓ Plug your TV/DVD/SATELLITE into one extension lead and remote socket reducing standby power consumption.
- ✓ Turn off all lighting and electrical appliances with one press of a button.

Home Easy is simple to install and use. The product range is categorised into four groups all of which are compatible with each other.

1. On/Off
2. Timer & Dimmer
3. Outdoor
4. Ultimate



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Email: info@eew.ie  
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- 11** Unit 1G, Block 2, Three Rock Road Sandyford Industrial Est, Dublin 18  
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- 15** **Longford Electrical Wholesale**  
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