· NEW EDITION ·

IRIS

POWER LINE IMPROVED FILTER

Provision For Power Saving Product

ICK solutions

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ABOUT COMPANY

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We are experiencing the sharp rise in prices in our daily lives as a result of the restructuring of the global supply chain.
This increase in costs causes the need to reduce other costs of each economic entity, which in turn leads to efforts to reduce essential costs. Among them, energy is one of the essential costs, but the limit of its savings is clear.
Saving energy costs, especially electric energy costs, is essential not only from an economic point of view, but also from an environmental point of view for the future. So that is our mission, our goal, and the reason we established the company.
We would like to introduce you to one solution to saving the cost of electrical energy.

WHY IRIS?

ENVIRONMENTAL IMPROVEMENT

The constant exhaustion of the energy sources ;
It is necessary to reduce energy consumption by improving the electric energy environment

EFFICIENCY RISES

Through the product of ours which equips the state-of-art CNT technology, can eliminate the noises that occur when loads operate; saving energy

ELECTRICITY COST SAVINGS

Price of electricity is rising and IRIS is the solution to your electricity bill savings

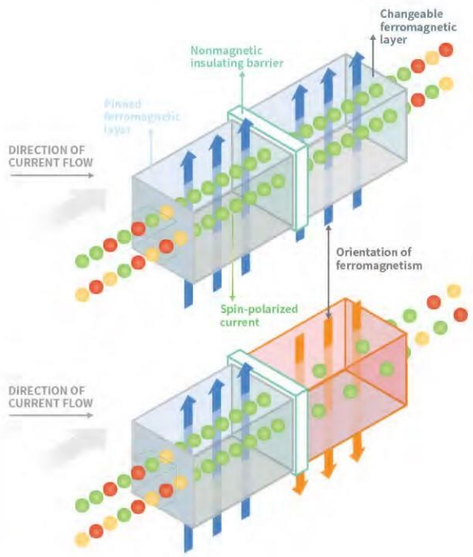
PRODUCT TECHNOLOGY

01. COMBINES STATE-OF-THE-ART TECHNOLOGY

MWCNT

- Synthesis of the polymer and the nano ceramic optimizes the dielectric properties
- Energy is compensated by improved supply conditions and noise removal
- Excellent effect in the inductive load
- State-of-the-art MWCNT(Multi Wall Carbon Nano Tube) materials technology introduced
- Power factor improvement function to compensate reactive power

02. IRIS TECHNOLOGY



The IRIS power saver is a technology that removes noise due to impedance changes in the power distribution system and applies energy loss due to instantaneous voltage drop due to switching operation in inductive loads using polymer nano-composite and CNT, a new material dielectric. It aligns and supplies magnetic wave energy to the power system, and through this, the electron spin energy that could not be used in the normal power supply process is activated to improve the transmission efficiency of electrical energy.

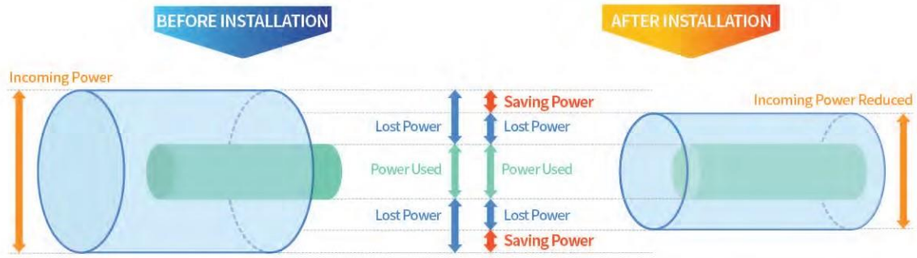
It optimizes the current flow through the magnetic wave energy supply to generate energy in the process of consumption. It is a technology that reduces energy consumption by compensating for lost energy and improving the power environment and suppressing unnecessary power consumption.

03. HOW TO SAVE ELECTRICITY (→ ENHANCING ENERGY EFFICIENCY)

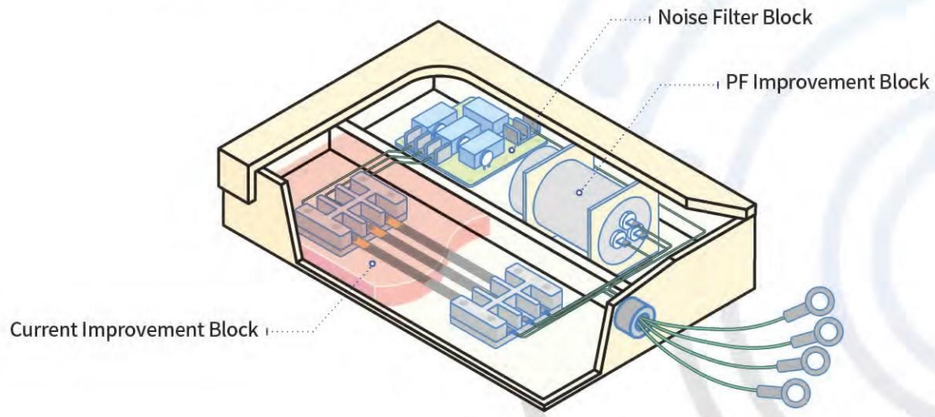
☑ WORKING PRINCIPLE

- Special materials react with electricity to generate Magnetic Force Energy
- That energy turns it into a better energy density flow
- Better flow means reduced losses and increased efficiency

☑ POWER CONSUMPTION LOSS REDUCTION MODEL



04. INTERNAL STRUCTURE



PRODUCT MODEL INFO

※ Ratings from 10kVA to 1,000kVA (For over 1,000kVA, enable to by connecting parallel of the IRIS)

Industrial

NF 1000

NF 500

NF 300

NF 200

Commercial

NF 100

NF 50

NF 30

Residence

NF 20

NF 10

PRODUCT SPECIFICATION

MODEL NO.	INPUT PHASE	INPUT VOLTAGE	INPUT FREQ.	DIMENSIONS (W x L x H)	WEIGHT	CAPACITY
NF 1000	3Φ	100V – 440V	50Hz / 60Hz	37 x 54 x 14 cm (14.5 x 21.2 x 5.5 in)	23kg (50.7lb)	1000kVA
NF 500	3Φ	100V – 440V	50Hz / 60Hz	35 x 50 x 12 cm (13.8 x 19.7 x 4.7 in)	15kg (33.0lb)	500kVA
NF 300	3Φ	100V – 440V	50Hz / 60Hz	29 x 40 x 11 cm (11.4 x 15.7 x 4.3 in)	11kg (24.2lb)	300kVA
NF 200	3Φ	100V – 440V	50Hz / 60Hz	26 x 38 x 10 cm (10.2 x 14.9 x 3.9 in)	9kg (19.8lb)	200kVA
NF 100	3Φ	100V – 440V	50Hz / 60Hz	22 x 31 x 10 cm (8.7 x 12.2 x 3.9 in)	7kg (15.4lb)	100kVA
NF 50	3Φ	100V – 440V	50Hz / 60Hz	18 x 27 x 8 cm (7.1 x 10.6 x 3.1 in)	5kg (11.0lb)	50kVA
NF 30	3Φ	100V – 440V	50Hz / 60Hz	17 x 25 x 7 cm (6.7 x 9.8 x 2.8 in)	4kg (8.8lb)	30kVA
NF 20	1Φ	100V – 440V	50Hz / 60Hz	12 x 18 x 6 cm (4.7 x 7.1 x 2.3 in)	3kg (6.6lb)	20kVA
NF 10	1Φ	100V – 440V	50Hz / 60Hz	11 x 16 x 5 cm (4.3 x 6.2 x 1.9 in)	2kg (4.4lb)	10kVA

※ Product(Specification, Shape) may change without notice due to specification improvement

HOW TO INSTALL IRIS

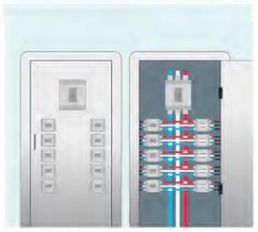
1 >>

Fix the product(IRIS) to the wall

1. Mark mounting points and screw to wall
2. Leave wires dangling until ready for installation

2 >>

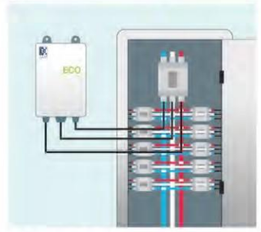
Tunrn off circuit breaker / Front panel removal



1. Turn off sub-circuit breaker
2. Turn off main circuit breaker
3. Unscrew bolts or fasteners and remove front panel
4. Read with voltmeter(no power)
5. Read with clampmeter(no current)

3 >>

Connect IRIS wires to circuit breaker



1. Connect IRIS wires to second ary side in main circuit breaker

4

Reassemble circuit breaker box

1. Reinstall front panel
2. Turn on the main circuit breaker
3. Turn on the sub-circuit breaker

PERFORMANCE DIFFERENCE AS PER LOAD TYPE

Description of product performance differences as per load types

- The higher the density of electricity, the better the power efficiency.
- The density of electricity decreases when it encounters a load.
- However, the density of electricity is lower for inductive loads than resistive loads.
- It is the function of this product to increase the lowered density.
- Therefore, it performs better under inductive loads.

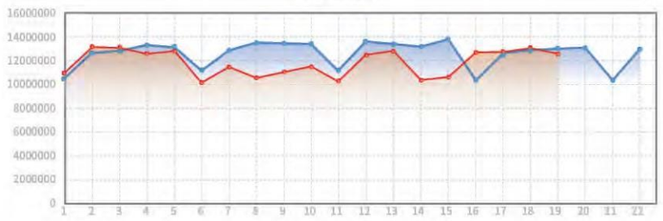
THE BEST LOCATION

The use of inductive loads in many different places.
(Hotels, Restaurants, Factories, Supermarkets, etc)

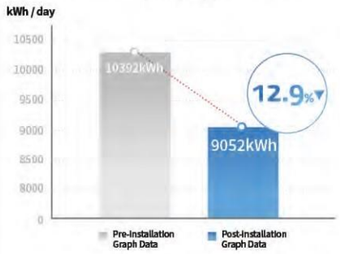
CASE STUDY

In September 2017, IPF-300 was installed at Nike factory located in Indonesia, and monthly electricity usage was measured before and after installation. As a result, Nike factory's total power consumption after installation was reduced by 12.9% compared to before installation. During the trial period, there will be no significant changes in operating procedures, loads, or sales. After installation in Nike factory, the ROI is around 12 months.

Reduction in Normalized Consumption (Wh / day)



Reduction in Normalized Consumption (kWh / day)

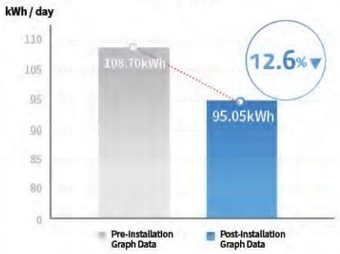


Location	Nike Shoes Factory, Indonesia
Type of Business	Factory
Business Hours	24hrs / 365days
Type of Product	Industrial
Product Model	IPF-300
Saving Rate	12.9%
ROI	12 Month

7-Eleven convenience stores are a famous chain mart in Korea that sells sundry goods and groceries to consumers. Since it treats food, it is composed of refrigerating, freezing machines, consisting of inductive loads and composed of lights.
Compared the 24hr power use, a week before the installation and a week after the installation. The energy saving was 13.65kWh a day after installation which is about 12.6% saving rate.

Before and After Installation Date Analysis Graph

Reduction in Normalized Consumption (kWh / day)

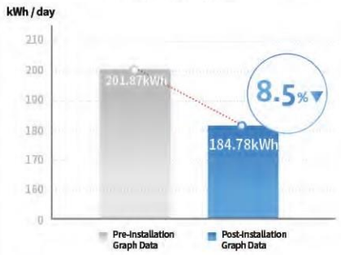


Location	7-ELEVEN, South Korea
Type of Business	Convenience Store
Business Hours	24hrs / 365days
Type of Product	Commercial
Product Model	IPF-30
Saving Rate	12.6%
ROI	12 Month

24hrs McDonald's load configuration is composed of lighting, heating, ventilation, air-conditioning, motors, commercial refrigeration and hot water systems etc..
Have installed the IPF-050 model of IRIS Power Saving Device in place to measure the amount of power used by the equipment. Compared 24hours after a week has elapsed since installation and 24hours of amount of energy consumption within a week before installation. The energy saving was 17.09kWh a day after installation which is about 8.5% saving rate.

Before and After Installation Date Analysis Graph

Reduction in Normalized Consumption (kWh / day)

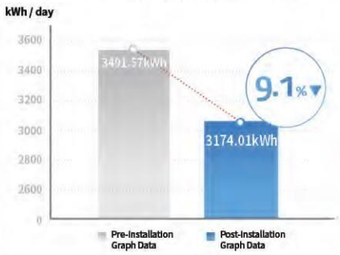


Location	McDonald, South Korea
Type of Business	Restaurant
Business Hours	24hrs / 365days
Type of Product	Commercial
Product Model	IPF-50
Saving Rate	8.5%
ROI	15Month

There are a total of 29 shops on the VIP plaza in USA, 17 on the first floor and 12 on the second floor. On the first floor are a variety of retail businesses such as restaurants, confectionery, golf, cell phones, sports, etc., and the second floor is mainly for hospitals and oriental clinics. 9 days before equipment installation and 9 days after installation of equipment were compared in 24 hour intervals for 1 hour. After installation, the power is reduced by 317.56 kWh for 9 days and is about 9.10% saving rate.

Before and After Installation Date Analysis Graph

Reduction in Normalized Consumption (kWh / 9day)



Location	VIP Plaza LA, USA
Type of Business	Shopping Mall
Business Hours	14hrs / 365days
Type of Product	Commercial
Product Model	IPF-30, IPF-50
Saving Rate	9.1%
ROI	18Month

WORKING WITH US

WHAT WE DO

- ☑ Diagnose your equipment
- ☑ Estimate your potential saving rate
- ☑ Calculate your ROI
- ☑ Examine the existing trend of your electricity consumption
- ☑ Suggest a revenue model
- ☑ Analyze the present condition of your electricity consumption through monthly monitoring

Consultation → Proposal → Testing → Installation → Aqreement → Maintenance

OPTIMIZATION OF POWER SUPPLY

↓

REDUCED ELECTRICITY CONSUMPTION

↓

LOWER EXPENSES

↓

INCREASED PRODUCTIVITY

↓

MAXIMIZATION OF PROFIT

CERTIFICATES

PATENT

CE

UL

ROI EXAMPLES BY SECTOR

SECTOR				
A	B	C	D	E
Heavy industry manufacturing facilities and equipment, Theme Park (Pleasure Ground)	Light industry manufacturing facilities and equipment	A place with a high operating rate of heating and cooling facilities (Grocery Store, Super Market, Department Store)	Building, Hotel, Restaurant, House	A place with a high proportion of lighting in total electricity use (Concert Hall, Stadium)

※ Applied Criterion

· **Electricity Bill :** US $0.12/kWh (OECD 2022 Average Industrial Electricity rate) · **Usage Time :** 24hrs / 365days

MODEL NO.	SECTOR				
	A	B	C	D	E
NF 1000	Under 6.5 Month	Under 8 Month	Under 10 Month	Under 13 Month	Under 20 Month
NF 500	Under 6.5 Month	Under 8 Month	Under 10 Month	Under 13 Month	Under 20 Month
NF 300	Under 6.5 Month	Under 8 Month	Under 10 Month	Under 13 Month	Under 20 Month
NF200	Under 6.5 Month	Under 8 Month	Under 10 Month	Under 13 Month	Under 20 Month
NF 100	Under 6.5 Month	Under 8 Month	Under 10 Month	Under 13 Month	Under 20 Month
NF 50	Under 6.5 Month	Under 8 Month	Under 10 Month	Under 13 Month	Under 20 Month
NF 30	Under 6.5 Month	Under 8 Month	Under 10 Month	Under 13 Month	Under 20 Month
NF 20	Under 6.5 Month	Under 8 Month	Under 10 Month	Under 13 Month	Under 20 Month
NF 10	Under 11 Month	Under 13 Month	Under 16 Month	Under 21.5 Month	Under 32.5 Month

ROI CHARACTERISTICS AS PER USAGE ENVIRONMENT CONDITIONS

The more the electricity usage, the lower the ROI

The higher the electricity bill, the lower the ROI

Since the power saving rate for inductive loads such as refrigerator, showcase etc., is better than resistive loads such as heat transfer equipment, lighting etc., the more the inductive load is in the product configuration of the usage environment, the lower the ROI.

Because devices that perform tasks that require repeatedly high torque values, such as compressors, have better savings, the more such devices, the lower the ROI.

WARRANTY & PRODUCT LIFESPAN

FAQ'S

Q1. What is IRIS? How does it work?

IRIS is a revolutionary new energy management equipment that uses Magnetic Wave Energy to realign electron spin. This results in a more efficient flow that minimizes energy loss.

Q2. How much energy does IRIS save for each type of load?

The specific saving rate depends on the actual operating environment and the operating mechanism of the load. Below is the average saving rate based on the statistics of various field reports :

▶ **On Resistive Load**
- Possible Energy Saving Rate is less than 3%.
- Up to 5% increase of illumination intensity.

▶ **On Inductive Load**
- Minimum Saving Rate is 11%

▶ **On Complex Load : Mixture of R + L**
- Minimum 8% (where inductive load takes more than 60% out of whole load system)

Q3. What is the lifespan of IRIS unit ?

Generally, the product lifespan is 20 years, which varies depending on the usage environment.

Q4. What is IRIS's competition ?

IRIS is the world's first patented energy management equipment based on CNT technology that does not use Voltage Regulation to save energy. IRIS offers a new chemically based system that makes your current electrical system more efficient. IRIS does not drop the voltage or your current system, nor does it take up a large amount of space or consume energy to function. In short, there is no other energy saving product that compares to IRIS on the market.

Q5. How do I install my IRIS unit? How long does it take to install?

IRIS uses parallel installation and is usually installed after the Circuit Breaker. However, dispersed installation for each circuit is also possible. Installation usually take about 30 minutes per unit.

Q6. How do I determine which IRIS unit is suitable for my location or load?

You can find the most suitable unit by examining the model number of each IRIS unit. The model number indicates the maximum capacity that unit can suitably perform.
For example, model number NF 30 can provide the proper energy saving performance at a location that consumes a maximum of 30KVA. This means that the IRIS unit must have a capacity that is larger than the location or load of installation. If your location consumes a maximum of 70kWh, the proper IRIS model would be NF 100. In order to select the proper IRIS model, you must first determine the Main Transformer Capacity, Contract Capacity, Circuit Breaker Capacity and Actual Maximum consumption. The amount of electricity consumed by your location determines the most suitable IRIS model.

Q7. How do I check my energy savings?

The best way of checking your energy savings is through regular consumption monitoring. This will give you the most clear and substantial indicator for energy savings. The easiest way to see how much energy you are saving is to look at your electric bill after IRIS is installed. It is also possible to install a data logger or recording devices to tell you specific readings periodically.
If you are comparing your kWh usage with corresponding months from the pervious year it is important to factor in any new equipment or changes in operating conditions.

Q8. Does IRIS cause any harmful effect on electrical systems, machines or equipment?

IRIS does not cause any harmful effect on the installed system. Unlike other energy savings devices that drop voltage, IRIS does not consume any voltage or current so it will not affect your equipment.

Q9. What is an applicable load capacity for IRIS?

IRIS can be used with any size low voltage load (Single Phase and Three Phase). With 9 model size IRIS can be designed singularly or in groups to suit the subject load. There is no maximum or minimum load.

Q10. Does IRIS optimize Voltage?

No, IRIS does not effect the voltage within the circuit. IRIS optimizes the environment of electric current supply within the circuit.

Q11. Can IRIS interfere with Residential Current Devices?

No, IRIS will not cause any harmful effect on system components.

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