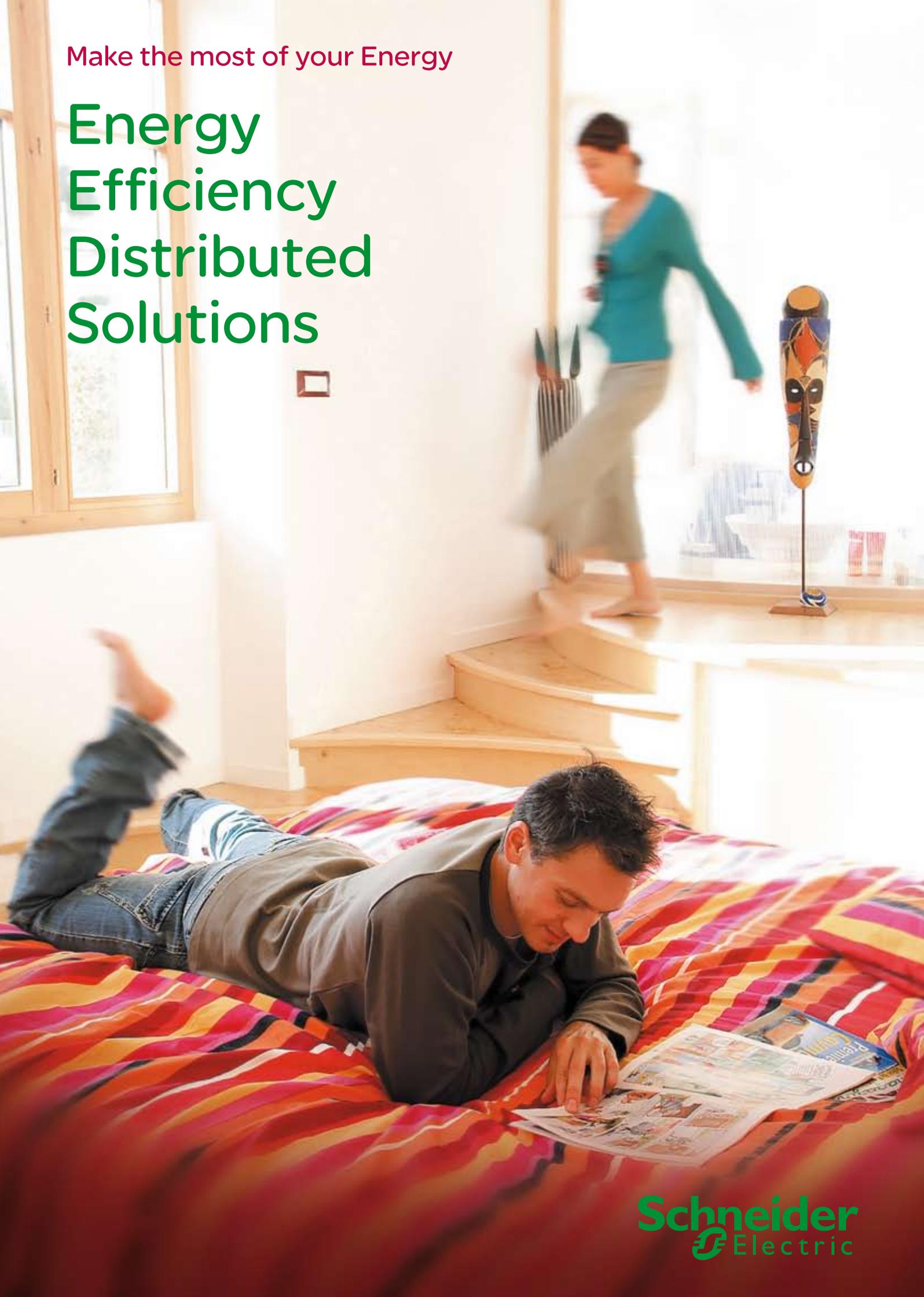


Make the most of your Energy

Energy Efficiency Distributed Solutions





Develop a common attitude



Edito...

up to 30% EE*

*Energy Efficiency



Why have Schneider Electric and its distributors adopted the Energy Efficiency attitude?

Energy Efficiency is the quickest, cheapest and cleanest way to reduce our energy consumption and achieve greenhouse gas emission reduction to meet Kyoto targets.

It's also a fast growing demand on the part of all the actors in the market. Schneider Electric has made the commitment to be your energy manager, your energy expert, and your green partner!



Why an EE standard solutions catalogue?

Ambitious Energy Efficiency actions are feasible NOW: in most of the existing installations, we can target up to 30% energy savings using existing offers and technologies.

Local Energy Efficiency actions have an important leverage effect: due to losses in the transmission and distribution electricity network, 1KWh of usage in a building requires 3KWh of production: every time we save one unit in the buildings we save three times more production capacity!



Schneider Electric is the best in class Energy Efficiency partner.

As professionals, distributors provide significant access close to business in the field, on which each customer can rely to remain at the top of the art. They are in the best position to listen to your questions, answer your questions and remove all doubts you might have on the performance of Energy Efficiency solutions.

Schneider Electric and your distributors are your energy specialists for significant and sustainable savings.



We can all achieve more while using less.

We are optimistic about the future and believe that it is possible to find solutions that allow us to fulfil our true potential while reducing our impact on the environment.

That's why Schneider Electric and its distributors commit to help people make the most of their energy!

Energy Efficiency: a common concern!

Under the Kyoto Protocol, industrialised countries have agreed to reduce their collective emissions of greenhouse gases by 5.2% by 2012, based on the level of emissions for 1990.

Today electricity is the major contributor to greenhouse gases. Up to 50% of CO₂ emissions attributable to residential and commercial buildings are from electricity consumption.

Moreover, as domestic appliances, computers and entertainment systems proliferate; and the use of other equipment such as air conditioning and ventilation systems increases, electricity consumption is rising disproportionately to other energy usage.

And this trend is here to last unless we do something!

Tackling energy and CO2 emission challenge, Energy Efficiency is a must!

+30%

Energy Efficiency, a challenge for all of us!

Our products and solutions are present at every link in the energy chain and contribute to energy saving. Up to 30% savings can be achieved through a combination of:

+10 to 15%

Efficient devices and efficient installation

Low consumption devices, insulated building...

+5 to 15%

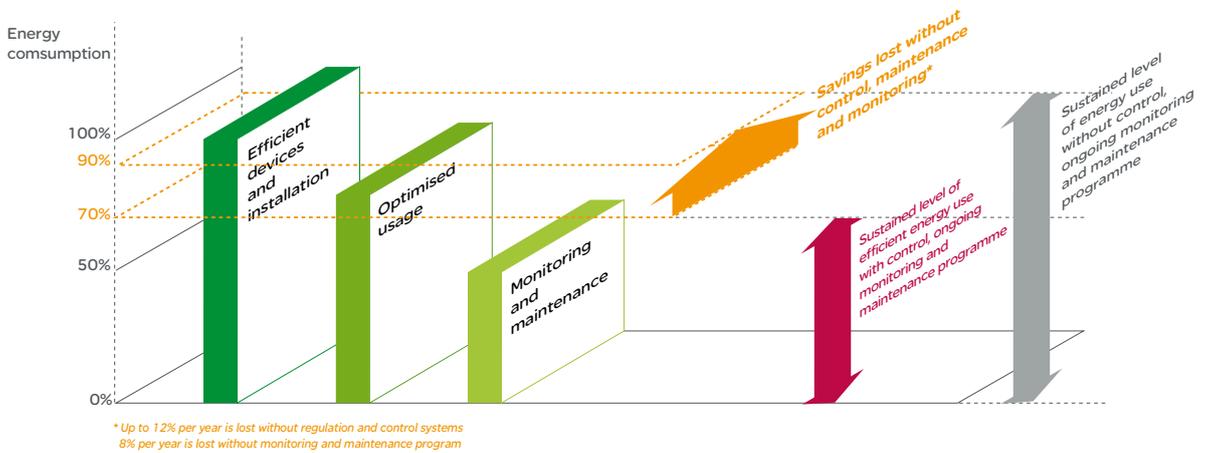
Optimised usage of installation and devices

Turn off devices when not needed, regulate motors or heating at the optimised level...

+2 to 8%

Permanent monitoring and improvement program

Rigorous maintenance program, measure and react in case of deviation



This catalogue presents a selection of solutions to allow contractors to promote and implement EE solutions to their customers in:

Residential & small commercial markets

- Lighting control: dimmers, timers, movement and presence detectors, specific switches, light sensitive switches.
- Temperature control: thermostat, floor heating control.
- Shutter control.

Medium & large commercial markets

- Lighting control, temperature control, shutter control: stand alone electronics and modular solutions and Networked integrated systems.
- Air conditioning, ventilation: variable speed drives.
- Energy management: power factor correction, metering, power monitoring and control.

Industry & infrastructure markets

- Air conditioning, ventilation, compressed air, conveying machines: variable speed drives.
- Energy management: power factor correction, Metering, remote monitoring of energy consumption, power monitoring and control.

To achieve significant energy efficiency, we have to act along three lines:

- Improve the intrinsic efficiency of the installation (insulation material, low consumption bulbs,...).
- Proactively optimise the use of the energy (maintaining the temperature of a building constant at the right level, shutting down installations as soon as they are not used...).
- Proactively adjust to the evolution of the installation (ageing, different usage, extension of a building) by a permanent improvement approach.

It is proven that counting on human behaviours to efficiently implement energy efficiency actions does not work: after few weeks of initial goodwill, the savings are lost.

The only way to achieve sustainable energy saving is to implement automated solutions which help users to measure, drive, control and analyse the energy usage of the installation.



Schneider Electric
today technologies

Distribution network
expertise

For you 30% energy saving is achievable with today technologies.
Up to 40% of the potential savings for a motor system are realised by the Drives & Automation.
Up to 30% of the potential for savings in a building lighting system can be realised via the lighting control system.

Summary

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Chapter 4

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Energy Efficiency label

Our EE labels help you make the right choice



This Energy Efficiency solutions label indicates the potential energy savings you can expect from the solution. These solutions enable sustained energy efficiency.



This Energy Efficiency label marks the products which are at the heart of the solution. Thanks to these ranges you can make the difference compared to a traditional solution.



Schneider Electric enables you to make a concrete difference!

Regulation is pushing Energy Efficiency worldwide

Kyoto Protocol was the start of fixing quantitative targets and agenda in CO₂ emissions reduction with clear government's commitments.

Beyond Kyoto commitment (who covers only the period up to 2012) many countries have fixed longer time frame and targets in line with the last GIEEC recommendations to UNFCCC to stabilise the CO₂ concentration at a level of 450ppm (this should require a division by 2 before 2050 of the CO₂ emission level based on 1990).

European Union is a good example and firm commitment with a target of less 20% before 2020 has been taken by heads of EU member states in March 2007 (known as the 3x20: it includes reduction of 20% of CO₂ emission, Improvement of 20% of the Energy Efficiency level and reaching 20% of the energy produced from renewable). This commitment of less 20% in 2020 could be extended to less 30% in 2020 in case of post Kyoto international agreement.

Some European Countries are planning commitment for the 2050 with level of reduction up to 50%. All of this illustrates that Energy Efficiency landscape and policies will be present in a long time frame.

Reaching these targets will require real change and regulations, legislation, standardisation are enablers governments are reinforcing everyday.

All over the world Regulation/Legislation is strengthening stakeholders obligations and putting in place financial & fiscal schemes

In US

- Energy Policy Act of 2005
- Building Codes
- Energy Codes (10CFR434)
- State Energy program (10CFR420)
- Energy Conservation for Consumer Goods (10 CFR 430)

In European Union

- EU Emission Trading Scheme
- Energy Performance of Building Directive
- Energy Using Product Directive
- End use of energy & energy services directive

In China

- China Energy Conservation Law
- China Architecture law (EE in Building)
- China Renewable Energy Law
- Top 1000 Industrial Energy Conservation Program

Various legislative and financial-fiscal incentives schemes are developed at national and regional levels such as:

- Auditing & assessment schemes
- Performance labelling schemes
- Building Codes
- Energy Performance Certificates
- Obligation to energy sellers to have their clients making energy savings
- Voluntary agreements in Industry
- Financial – market mechanism (tax credit, accelerated depreciation, white certificates,...)
- Taxation and incentive schemes

All sectors are concerned and regulations impact not only new construction and installation but as well the existing buildings in environment and industrial or infrastructure.

In parallel Standardisation work has started with a lot of new standards being issued or in progress

In building all energy use are concerned:

- Lighting
- Ventilation
- Heating
- Cooling and AC

For industries as well as commercial companies Energy Management Systems standards (in line with the well known ISO 9001 for quality and ISO 14001 for environment) are under process in Standardisation Bodies. Energy Efficiency Services standards are as well at work.



Finally putting in place energy efficient equipments and Energy Efficiency improvement plans is no more an option but becoming an obligation and each country implements local regulations and incentives schemes with financial impacts which cannot be ignored

How to evaluate the benefits for users, owners, and occupants?

The proof by the examples!



Example

Control of pumps and fans in building or industry



Motor control with Variable Speed drives

In a conventional pumping and ventilation installation, the electric motor is directly supplied by the line supply and runs at its rated speed. With a drive placed between the circuit breaker and motor the saving in electricity cost could reach from 15% and 50% depending on the installation.

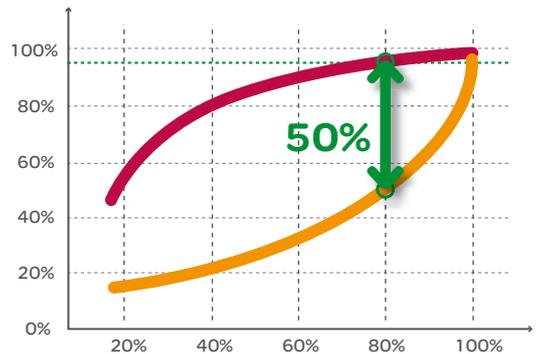
The return on the investment is usually very quick, between 9 and 24 months.

- Traditional control:
80% of nominal flux → 95% of nominal power



Control by a variable speed drive:
80% of the flux → **50%** of nominal power

Evaluate your saving and your pay-back with our Eco8 software!



Example

An industrial building

(source: Gimelec "Efficacité Energétique April 2008")



Measuring system: potential of saving up to 10% energy saving

- Yearly electrical consumption: 100 MWh
- Annual cost: 120 k€
- **Energy saving target: 10%**

Implementation of a metering and monitoring solution with power meters, remote monitoring and power monitoring software.

- Investment: 11 k€



After report analysis and action implementation, the user has saved **14.4 k€** of his electricity bill that represent **45 days** of consumption for production.



Lighting control allows up to 30% savings

Lighting consumes 14% of all electricity within Europe and 19% of all electricity in the world (source IEA-International Energy Agency). Switching the older lighting to energy saving lighting is a first step that must be completed by the use of efficient devices that will switch-on and switch-off lights when it is necessary and will adapt it according to occupancy and/or brightness.

Example 1

Potential saving on useless lighting and forgetting lighting-off

(source: Cardonnel consultant)



Type of building	Potential saving	Areas
School	25 to 30%	class rooms, resting areas...
Offices	up to 42%	lobbies...
Hospital	18%	rooms
Hotel	20%	rooms, restaurant, lobby

Example 2

Control solution and consumption reduction

(source: French Lighting association)



Control solution	Saving	Yearly consumption (kWh/m ²)
Manual switch	analyzing basis	19.5
Programmable time switch	10%	15.2
Presence detection	20%	13.2
Dimmers with brightness detection	29%	12
Brightness detection and presence detection	43%	9.6



Power quality and reduction of losses: up to 10 %

Example

Enable a bank located in Spain to no longer pay for reactive energy and to increase the real available power



Analysis:

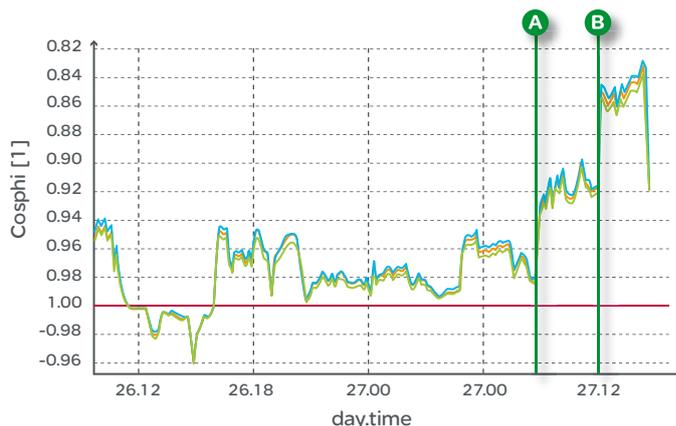
- Power supply via a 1000 kVAR transformer, 0.8 power factor.
- Reactive energy invoiced: 10% of the total invoice amount.



Solution installed:

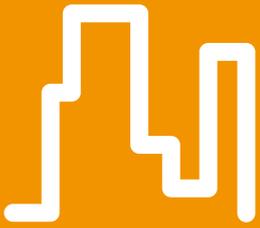
A 250 kVAR Varset Harmony correction battery raiser and maintained the power factor above the re-invoicing limit (0.92), i.e.:

- -10% on the invoice,
- +15% extra available power.



- A 15 kVAR capacitor banks disconnection
- B 3 kVAR capacitor banks disconnection

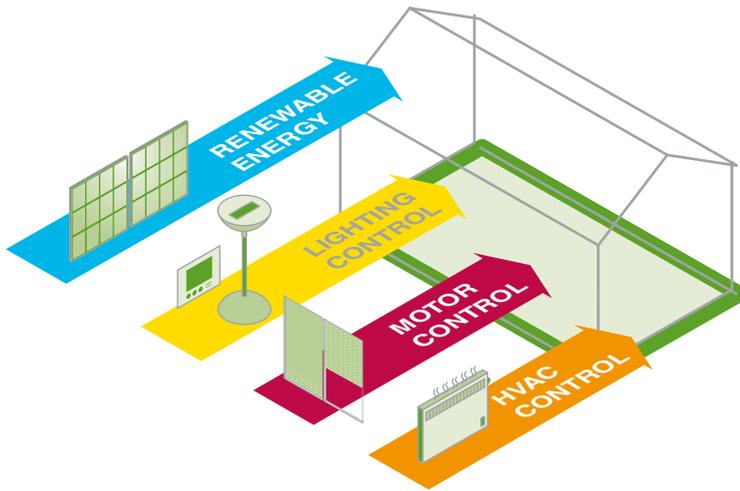
For each market there are EE simple solutions





Solutions for residential and small buildings

up to 40%



Residential EE solutions may save 10% to 40% electricity



20% to 25% of consumed energy (EU & US)



Heating is 30% of energy usage



Lighting & appliances are over 40%

Enabling products

- Lighting control: Dimmers, Timers, Movement and presence detectors, specific switches, Light sensitive switches
- HVAC: Metering, Programmable Time switches
- Motor control: Programmable Time switches, Variable Speed Drives
- Renewable Energy: System for the production of Photovoltaic Energy

Management systems

- Shutter control systems
- Lighting Control systems
- Home control systems

Added value services

- Remote control
- Multimedia control
- Alarm handling



MINt



CDM360



SunEzy 2000

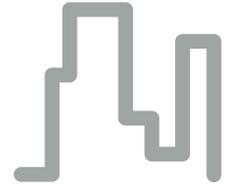


IHP

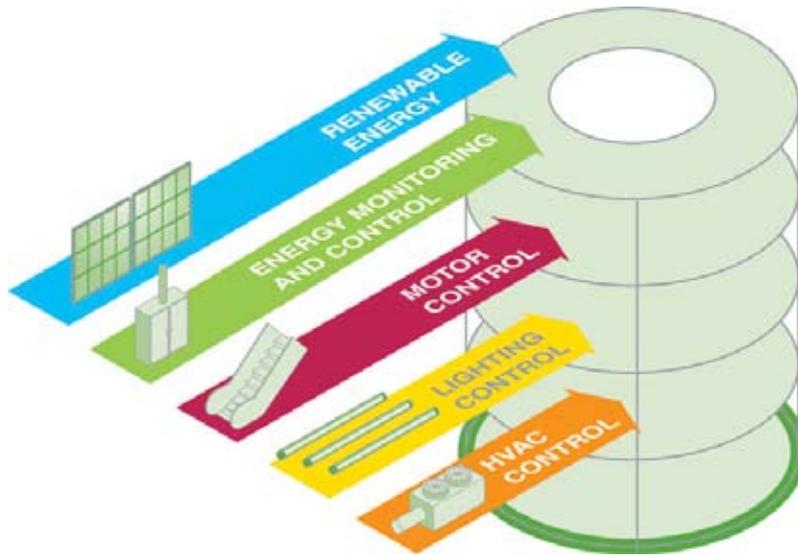


Unica

Solutions for medium and large buildings



up to 30%



Buildings Renovation can yield up to 30% energy savings



Consume 20% of total energy



3 key areas: HVAC, lighting & integrated building solutions



Motors consume 35%+ of electricity

Enabling products

- Lighting control: Dimmers, Timers, Movement and presence detectors, Switches
- HVAC: Variable speed drives for HVAC pumps
- Motor control: Variable Speed drives
- Energy management: Power compensation and Filtering, Meters
- Renewable Energy: System for the production of Photovoltaic Energy

Management systems

- Building management systems
- Power monitoring and analysis

Added value services

- Site audits
- Data Collection and Analysis
- Financial Analysis & ROI Validation
- Planning of Improvement plan
- Remote monitoring and optimisation



ATV21



ATV61



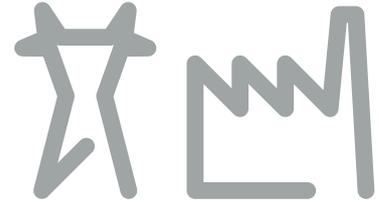
PM800



Compact NSX

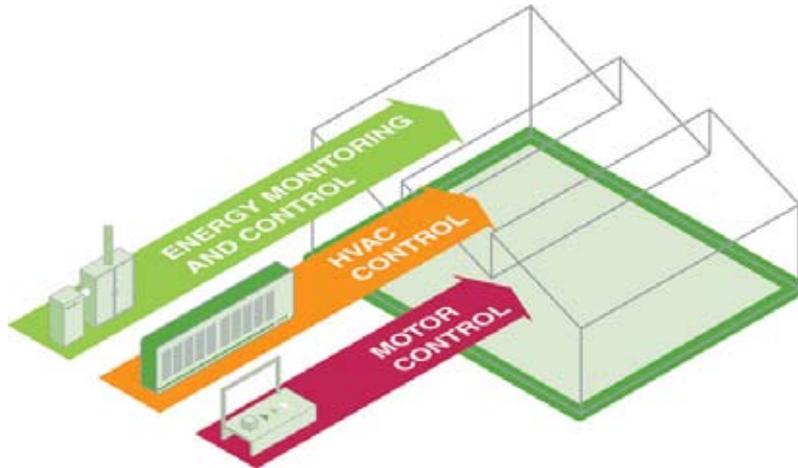


Varplus2



Solutions for industry and infrastructure

up to 20%



Enabling products

- HVAC: Variable speed drives for motors
- Motor control: PLC for production throughput optimisation and machine "mute" mode management, Variable Speed Drives
- Energy management: Power compensation and Filtering, Meters

Management systems

- Power monitoring and analysis
- Process supervisory systems

Added value services

- Site audits
- Data Collection and Analysis
- Financial Analysis & ROI Validation
- Planning of Improvement plan
- Remote monitoring and optimisation

Industry & infrastructure: an average facility can reduce consumption by 10 to 20%



A 25% savings would save 7% of world's electricity



The largest consumer, motors account for over 60% of electricity usage



There is a positive correlation between Energy Efficiency and productivity



ATV21



ATV61



PM800



Compact NSX



Varsset

> Solutions & core products cross index

➔ Core product by range

Type of product	Energy Management	HVAC Control	
EE core product	Power Meter	Remote Control	Load shedding device
Range name	EN40/EN'clic	TRC3	CDS
<p>↓</p> <p>Solutions</p>	Manage lighting in a garage		
	Identify over-consumption sources in your home	p. 26	
	Manage load shedding of your home electrical installation		p. 48
	Manage automatic lighting by presence detection in home		
	Automate lighting of access to your home		
	Automate lighting of a building hall		
	Optimise swimming pool water management		
	Optimise pumping for swimming pool		
	Optimise room lighting through the use of dimmers		
	Remotely control electric heating in apartments rented for vacation		p. 56
	Harness solar energy for your home		

for residential and small buildings



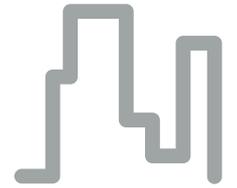
Lighting Control				Motor Control	Renewable Energy	
Timer	Movement detector			Programmable Time Switch	Variable Speed Drive	DC/AC converter
MINT	CDM 180	CDM 360	CDM Unica	IHP 2c	ATV11	SunEzy
p. 82						
			p. 76			
	p. 62					
		p. 60				
				p. 102		
					p. 100	
			p. 96			
						p. 108

> Solutions & core products cross index

➔ Core product by range 1/2

		Energy Management			
		Power Meter		MCCB	Capacitor Bank
		ME	EN40/ EN'clac	Compact NSX	Varplus2
↓ Solutions	Type of product				
	EE core product				
	Range name				
	Ensure effective operation of a cooling tower fan				
	Monitor and analyse electrical consumption of a shopping centre	p. 30			
	Harness solar energy for your building				
	Optimise electrical consumption of refrigeration equipment			p. 36	
	Reduce electricity consumption and costs of a shopping centre				p. 40
	Measure electrical consumption in a campsite		p. 28		
	Combine lighting, temperature and shutter control in office buildings				
Manage water heating in public buildings					
Optimise swimming pool water management					
Manage ventilation in hotel bathroom					

for medium and large buildings



HVAC Control				Motor Control	Renewable Energy
Variable Speed Drive	Time Relay	Bus System	Programmable Time Switch	Programmable Time Switch	DC/AC converter
ATV21	RTC	KNX	IHP 1c	IHP 2c	SunEzy
p. 46					
					p. 106
		p. 44			
			p. 52		
				p. 102	
	p. 50				

> Solutions & core products cross index

➔ Core product by range 2/2

		Type of product	Lighting Control				
		EE core product	Programmable Time Switch		Timer		Movement Detector
		Range name	IHP	IHP +2c	MINs	MINp	CDM 180
Solutions	↓ Monitor lighting time and manage the bells in a school		p. 90				
	Manage lighting in a hotel corridor				p. 84		
	Ensure effective lighting of the entrance of a block of flats				p. 74		
	Optimise lighting of technical premises in a hotel					p. 94	
	Automate lighting for hotel foyer cloakrooms						p. 58
	Optimise hotel car park lighting						
	Optimise shop-window lighting						
	Automate lighting of a building hall						p. 60
	Manage lighting in various parts of a shop						
	Automate public lighting according to sunrise and sunset						
	Automate lighting of surroundings of a building						
	Control lighting in classrooms						
	Control office lighting locally			p. 70			
	Create restaurant mood lighting						
	Manage automatic lighting in large areas with movement detectors						
	Manage lighting by detection of presence in office block						
	Manage lighting in building stairways						

> Solutions & core products cross index

→ Core product by range

Type of product	Energy Management		
EE core product	Power Meter	MCCB	Capacitor Bank
Range name	PM700 / PM800 / PM9	Compact NSX	Varset
<p>↓</p> <p>Solutions</p>	Optimise electrical consumption of different workshops	p. 34	
	Reduce electricity consumption and costs of a manufacturing plant		p. 38
	Monitor and analyse electrical consumption of different workshops	p. 32	
	Automate lighting, temperature and shutter control in office buildings		
	Reduce electricity costs and noise in an industrial fan		
	Optimise water pumping		

for industry and infrastructure

HVAC Control		Motor Control
Variable Speed Drive	Bus System	Variable Speed Drive
ATV61	KNX	ATV61
	p. 42	
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		p. 104



Standard Solutions

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Lighting Control

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Automate lighting of access to your home	62
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Manage lighting in building stairways.....	86
Manage lighting in various parts of a shop	88
Monitor lighting time and manage the bells in a school	90
Optimise hotel car park lighting.....	92
Optimise lighting of technical premises in a hotel.....	94
Optimise room lighting through the use of dimmers.....	96
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Motor Control

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Renewable Energy

Harness solar energy for your building	106
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> Energy Management

Identify over-consumption sources in your home



Customer's needs

An electrician is questioned by a customer who wants to understand why his electrical consumption is so high and to diagnose where the over consumption is coming from.

Distributor recommendation

Install temporarily a kilo-Watt-hour meter type EN'clac and measure the consumption of the different loads (HVAC, machines, lighting, swimming-pool,...) over a significant period. Its compact size allows it to be incorporated in the current switchboards (such as Kaedra, Pragma or Prisma G,...).

+ Energy Efficiency core products

- MID certification allows it to be used for billing applications
- The kilo-Watt-hour meter EN'clac provides direct measurement up to 40 A without CT's
- The bottom/bottom connection of current inputs facilitates the meter's connection with the associated circuit breakers in the customer's load centre.

> Zoom on

EN40/ EN'clac

Monitor your energy consumption!



EN'clac



→ Detailed sheet page 119 of this catalogue

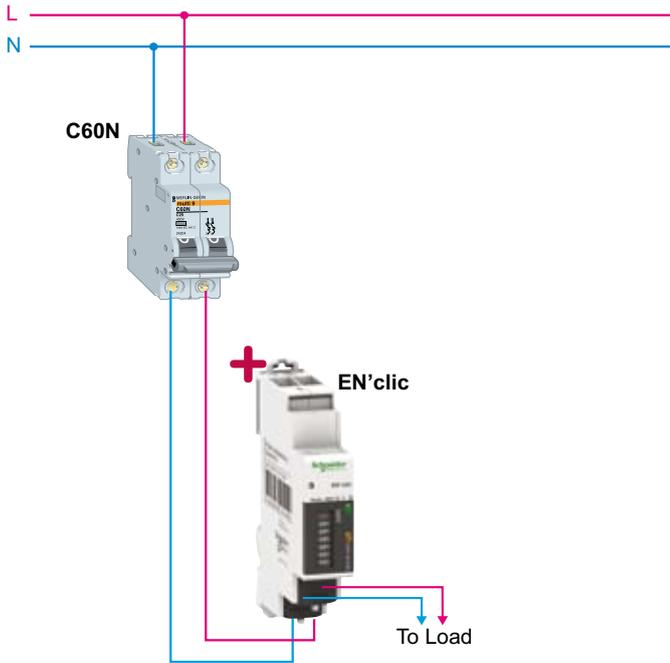
→ A complete list of product is available in Index (Cf. page 138 of this catalogue)



> Energy Efficiency benefits

- > This measurement will be used to identify the cause(s) of over-consumption that will permit to implement actions to reduce energy consumption.
- > Allocating the cost of energy is an indirect contribution towards reducing energy consumption.
- > A permanent visualisation of consumption helps to encourage more efficient use of energy and create a more disciplined behaviour.

Solution diagram



- The references and characteristics of C60 breakers depend on the installed power and type of load

> Products used

Product	Description	Unit	Reference	Index page
EN'clic	Kilo-Watt-hour meter	1	15237	p. 138
C60N	MCB 2 poles	1	24204	p. 138

> Energy Management

Measure electrical consumption in a campsite



Customer's needs

The campsite manager wants to measure his customers' electricity consumption in order to bill them for their exact usage. He also wants to make them more aware of their consumption to encourage them to make savings.

Distributor recommendation

Monitor the consumption of each sector using a kilo-Watt-hour meter type EN40P. Their small size allows them to be installed in compact switchboards such as Kaedra, Pragma, or Prisma G. Seal capability also ensures correct metering and accuracy of the invoice.

+ Energy Efficiency core products

- MID certification allows it to be used for billing applications
- The kilo-Watt-hour meter EN40P provides direct measurement up to 40 A without CT's
- The bottom/bottom connection of current inputs facilitates the meter's connection with the associated circuit breakers
- Ideal for outdoor uses, it retains its accuracy between -25°C and +55°C.

> Zoom on

EN40/ EN'clik

Monitor your energy consumption!



EN40P



→ Detailed sheet page 119 of this catalogue

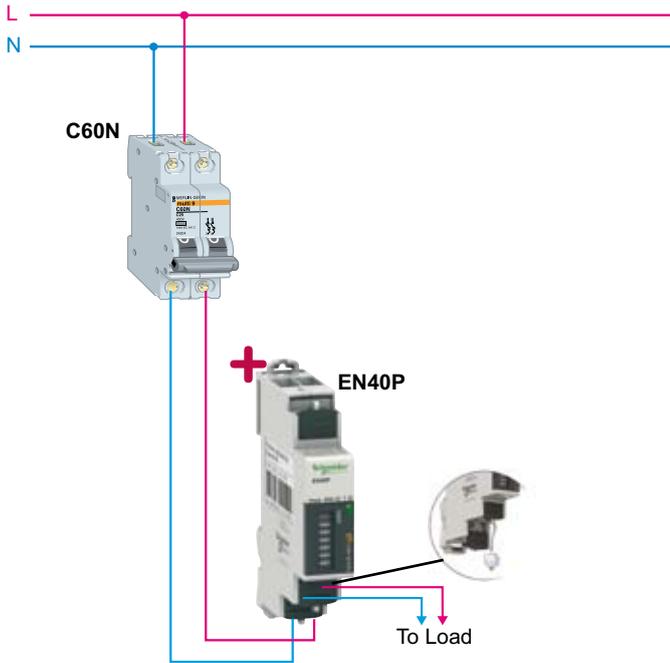
→ A complete list of product is available in Index (Cf. page 138 of this catalogue)



> Energy Efficiency benefits

- > This measurement can be used to implement actions designed to reduce energy consumption.
- > Allocating the cost of energy is an indirect contribution towards reducing energy consumption.
- > A permanent visualisation of consumption helps to encourage more efficient use of energy and create a more disciplined usage.

Solution diagram



- The references and characteristics of C60N breaker depend on the installed power and type of load

> Products used

Product	Description	Unit	Reference	Index page
EN40P	Kilo-Watt-hour meter	1	15239	p. 138
C60N	MCB 2 poles	1	24204	p. 138

> Energy Management

Monitor and analyse electrical consumption of a shopping centre



Customer's needs

The manager wants to identify excessive or unnecessary electrical energy use by controlling the consumption in different areas of the shopping centre and to allocate cost to the appropriate cost centre.

Distributor recommendation

A three-phase meter with neutral ME4zrt counts the total energy consumed by the installation; measurement is taken using current transformers. A three-phase meter ME3zr measures the energy of the specific furnace circuit. A 3 single-phase meter ME1zr measures the active energy of the other circuits. A yellow indicator light on the front face of the meter flashes according to consumption.

+ Energy Efficiency core products

PowerLogic ME W/hr meters are designed for measurement of Watt-hours by a single-phase or three-phase electrical circuit.

> Zoom on

ME

Make sure you don't miss anything!



ME3zr



ME4zrt



ME1zr



→ Detailed sheet page 124 of this catalogue

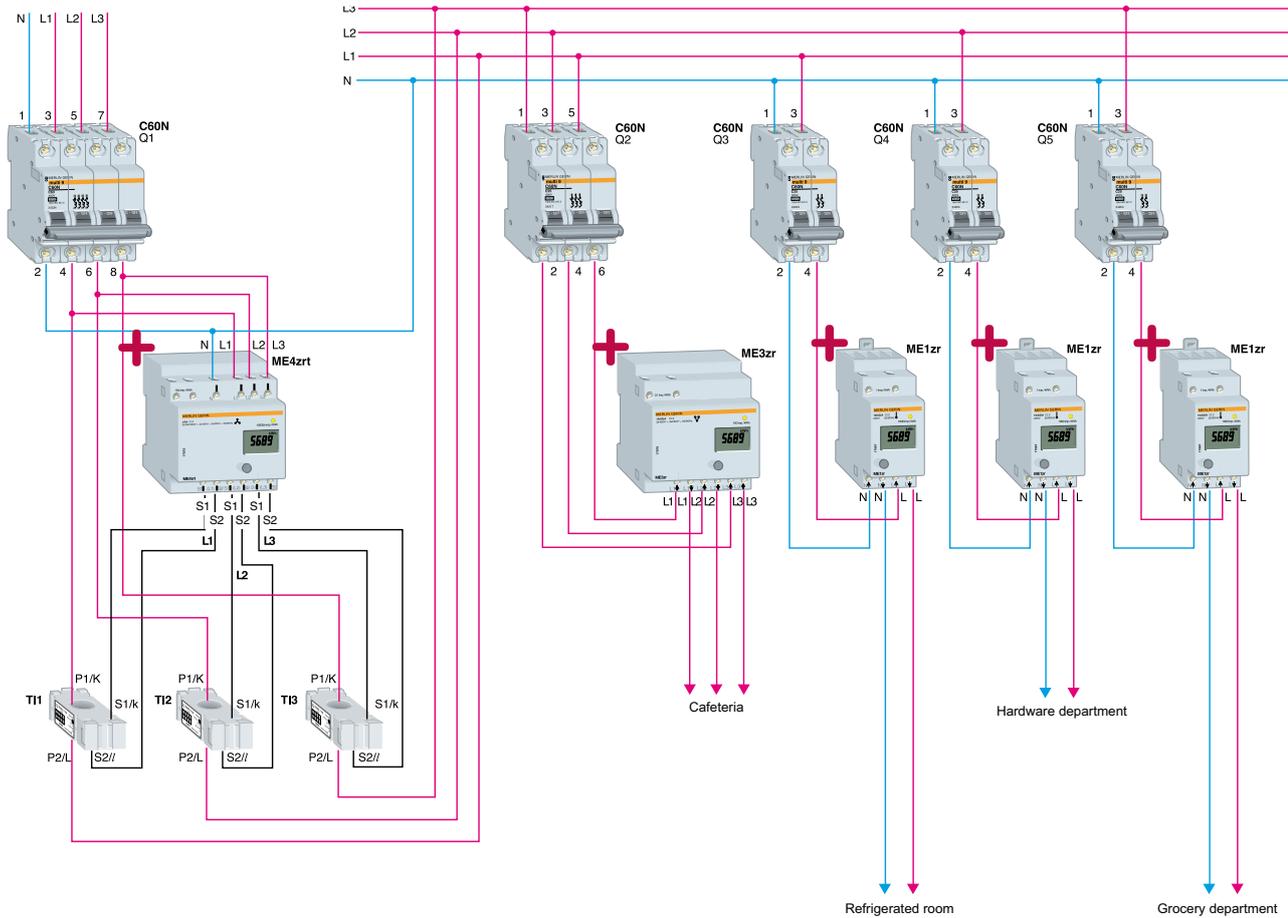
→ A complete list of products is available in Index (Cf. page 138 of this catalogue)



> Energy Efficiency benefits

> Permanent visualisation of consumption helps to encourage more efficient use of energy and create more disciplined behaviour among those in charge of business lines.

Solution diagram



> Products used

Product	Description	Unit	Reference	Index page
ME3zr	Three-phase meter	1	17076	p. 138
ME4zrt	Three-phase with neutral meter	1	17072	p. 138
ME1zr	Single-phase meter	3	17067	p. 138
C60N	MCB 4 poles	1	24234	p. 138
C60N	MCB 3 poles	1	24221	p. 138
C60N	MCB 2 poles	3	24208	p. 138
TI 75/5	Current transformer 75/5	3	16502	p. 138

> Energy Management

Monitor and analyse electrical consumption of different workshops



Customer's needs

The works manager wants to monitor his electrical energy use by controlling consumption in different production workshops so as to enable analysis by the departments concerned and to allocate cost to the appropriate cost centre. Aiming to reduce energy use by 10%, he wants a permanent indication of the data through a remote easy-to-use monitoring system, with historic data, consumption trends and cost allocation facilities.

Distributor recommendation

Just use a Power Logic system! The metering system has 1 Power meter PM710 and 2 PM9C equipped in the panel-boards of the workshop. A Power meter PM820 controls the main panel-board. The Power meters are inter-connected through an RS485 serial link, and an Ethernet communication card. PM8ECC is added to PM820 to enable communication to the Ethernet factory network. The supervision is done by the entry-range power monitoring system PowerView.

+ Energy Efficiency core products

- PM9C offering basic measurement capabilities to monitor simple electrical installations:
 - Instantaneous rms values
 - Energy values
 - Demand values and communication RS485.
- PM series 700 and 800 offering all the high-performance measurement capabilities, data recording and communication
- PowerView software, user friendly, entry range power monitoring for small system application:
 - Power consumption monitoring
 - Cost allocation
 - Equipment monitoring
 - Preventive maintenance.

> Zoom on

PM

Make sure you don't miss anything!



PM710



PM820



PM9C



→ Detailed sheet page 126, 127, 128, and 129 of this catalogue

→ A complete list of product is available in Index (Cf. page 138 of this catalogue)

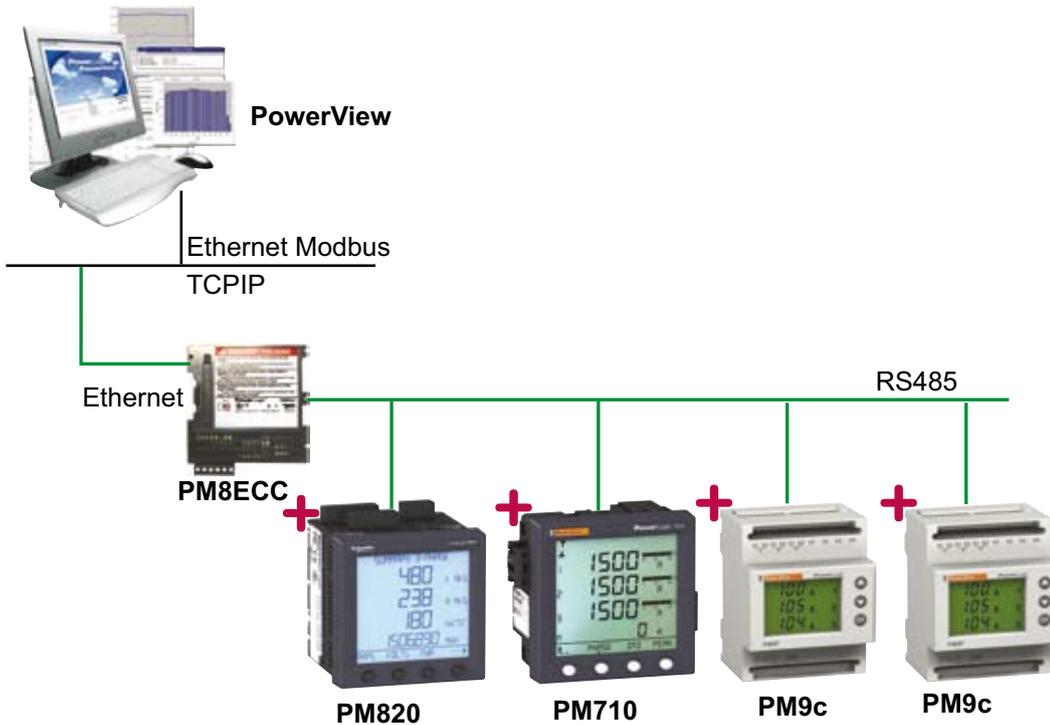


> Energy Efficiency benefits

> This measurement can be used to implement actions designed to reduce energy consumption.

> Permanent monitoring and visualisation of the consumption help to encourage more efficient use of energy and create a more disciplined behaviour among those in charge of workshops. It is a key first step toward a comprehensive energy intelligence strategy.

Solution diagram



> Products used

Product	Description	Unit	Reference	Index page
PM710	Power meter series PM700	1	PM710MG	p. 139
PM820	Power meter series PM800	1	PM820MG	p. 139
PM9C	Power meter with RS485	2	15198	p. 138
PM8ECC	Ethernet communication card	1	PM8ECC	p. 139
PowerView	English Software	1	PLVENG	p. 139

> Energy Management

Optimise electrical consumption of different workshops



Customer's needs

The production manager would like to renew the existing LV protection of his installation increasing the energy availability and optimising energy consumption. During a first modernisation campaign the installation was already equipped with a Modbus network.

Distributor recommendation

To replace the existing moulded case circuit breakers by the new Compact NSX equipped with Micrologic module and its communication module. By doing so the customer will benefit from the best in class protection and the measurement capabilities which are required at all levels of electrical distribution.

+ Energy Efficiency core products

The MCCB Compact NSX integrates measurement functions to be used for:

- Cost allocation
- Energy consumption
- Power quality analysis
- Installation monitoring
- Maintenance optimisation.

> Zoom on

Compact NSX

Compact NSX brings energy to life!



NSX 160F



→ Detailed sheet page 118 of this catalogue

→ A complete list of product is available in Index (Cf. page 138 of this catalogue)

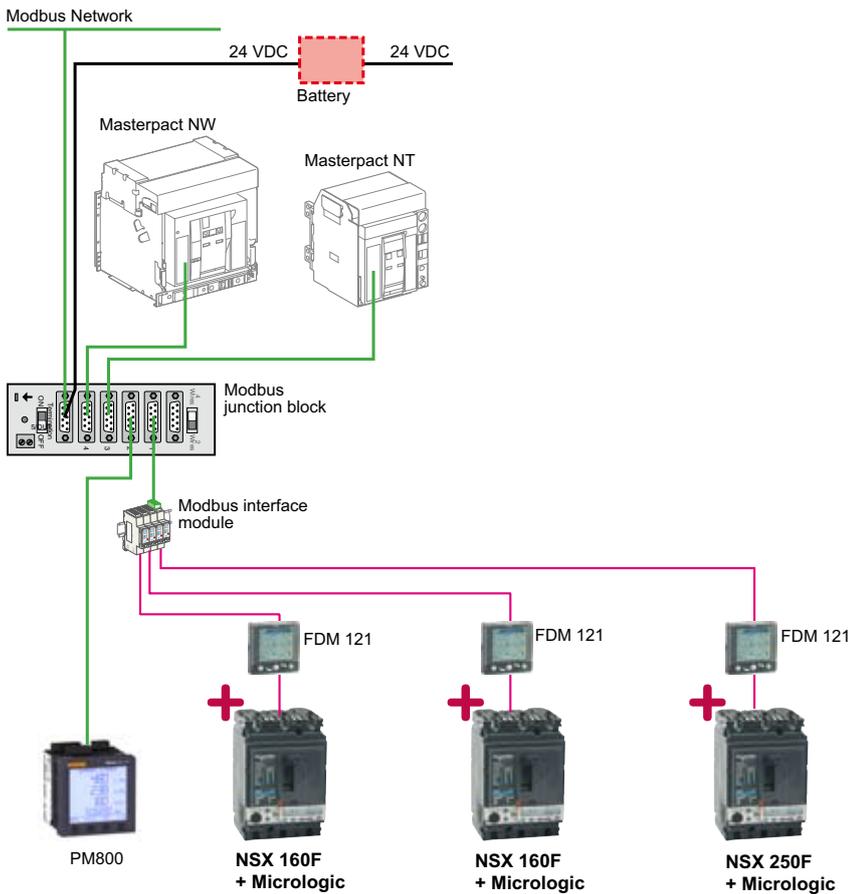


> Energy Efficiency benefits

> This measurement can be used to implement actions designed to reduce energy consumption.

> A permanent monitoring and visualisation of the consumption helps to encourage more efficient use of energy and create a more disciplined behaviour among those in charge of workshops. It goes beyond simple protection and becomes a true management tool.

Solution diagram



- The references and characteristics of NSX breakers depend on the installed power and type of load

> Products used

Product	Description	Unit	Reference	Index page
NSX 160F	Moulded case circuit breaker 36 kA – 3P	2	LV430403	p. 139
Micrologic	Trip unit	2	LV430491	p. 139
NSX 250F	Moulded case circuit breaker 36 kA – 3P	1	LV431403	p. 139
Micrologic	Trip unit	1	LV431491	p. 139
FDM 121	Remote display	3	TRV00121	p. 139

> Energy Management

Optimise electrical consumption of refrigeration equipment



Customer's needs

Refrigeration equipment represents 50% of the energy cost of food and beverage supermarkets. The management would like to follow and optimise continuously the energy consumption of each machine, maintain permanence of the chilling functions and benchmark the data between all the shops of the network.

Distributor recommendation

With Compact NSX moulded case circuit breakers integrating measurement functions you will be able to analyse the power consumption trends of the equipment, to provide chronological account of events contributing to the energy efficiency of the total installation and ensure that it is working perfectly, thus avoiding an unknown failure of refrigeration. Each NSX is equipped with Micrologic trip unit and remote display.

+ Energy Efficiency core products

The MCCB Compact NSX integrates measurement functions such as:

- Sub-metering and cost allocation
- Energy consumption
- Power quality analysis
- Installation monitoring.

> Zoom on

Compact NSX

Compact NSX brings energy to life!



NSX 250F



→ Detailed sheet page 118 of this catalogue

→ A complete list of product is available in Index (Cf. page 138 of this catalogue)

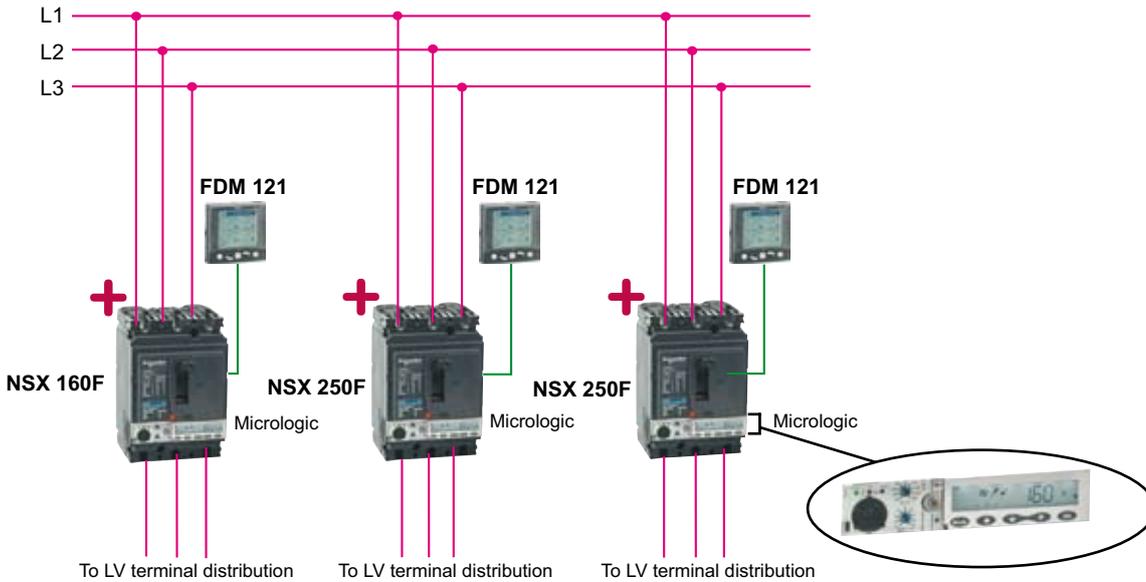


> Energy Efficiency benefits

> This measurement can be used to implement actions designed to reduce energy consumption.

> A permanent monitoring and visualization of the consumption contribute to the energy efficiency of the installation. In addition, load shedding will be organized for non priority loads to maintain the demand within the limits.
Example: cut HVAC 10' every hour, switch-on 1 neon tube every 4 in the offices...

Solution diagram



- The references and characteristics of NSX breakers depend on the installed power and type of load

> Products used

Product	Description	Unit	Reference	Index page
NSX 250F	Moulded case circuit breaker 36 kA – 3P	2	LV431403	p. 139
Micrologic	Trip unit	2	LV431491	p. 139
NSX 160F	Moulded case circuit breaker 36 kA – 3P	1	LV430403	p. 139
Micrologic	Trip unit	1	LV430491	p. 139
FDM 121	Remote display	3	TRV00121	p. 139

> Energy Management

Reduce electricity consumption and costs of a manufacturing plant



Customer's needs

The manager wants to identify and reduce his electricity costs, improve quality of his electricity and increase his energy availability. As he has a lot of motors and some with variable speed drives, the harmonic levels are high on his electrical network.

Distributor recommendation

The capacitor will reduce the energy cost by increasing the power factor: no more penalties for reactive power consumption on electrical energy bill and savings on active consumption thanks to the reduction of losses. The detuned reactor will master the harmonics levels and reduce the impacts of harmonics on all electronic devices: computers, telephones,...

+ Energy Efficiency core products

The solution is Varsset Harmony:

- Capacitor bank with detuned reactor
- Easy and fast assembly
- Circuit breaker main protection (optional).

> Zoom on

Varsset

The complete solution!



Varsset Harmony



→ Detailed sheet page 136 of this catalogue

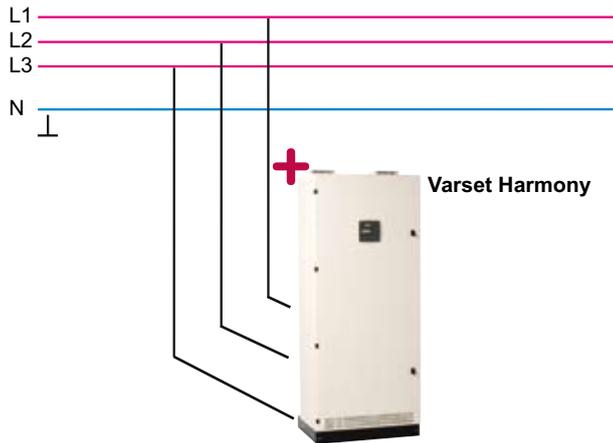
→ A complete list of product is available in Index (Cf. page 138 of this catalogue)



> Energy Efficiency benefits

- > A power factor correction solution will allow to reduce up to 10% on electricity invoice.
- > Increase available power up to 30%.
- > Master the harmonics levels up to 50% THDi.

Solution diagram



> Products used

Product	Description	Unit	Reference	Index page
Varset Harmony	Capacitor bank 400 V 300 kvar 50 Hz with detuned reactor 215 Hz with circuit breaker	1	65836	p. 138

> Energy Management

Reduce electricity consumption and costs of a shopping centre



Customer's needs

The manager wants to identify, localise and reduce his electricity costs. He also wants to improve the quality of electricity and increase its availability.

Distributor recommendation

The capacitor will reduce the energy cost by increasing the power factor. The detuned reactor will master the harmonics levels and reduce the impacts of harmonics on all electronic devices: computers, telephones, ...

+ Energy Efficiency core products

The solution includes:

- Varplus² capacitor:
 - Modular offer
 - Easy and fast assembly
 - High quality protection system with internal HRC fuse.
- Detuned reactor:
 - Easy and fast assembly
 - Low power consumption.

> Zoom on

Varplus²

Give oxygen to your electrical network!



Varplus²



→ Detailed sheet page 135 of this catalogue

→ A complete list of product is available in Index (Cf. page 138 of this catalogue)

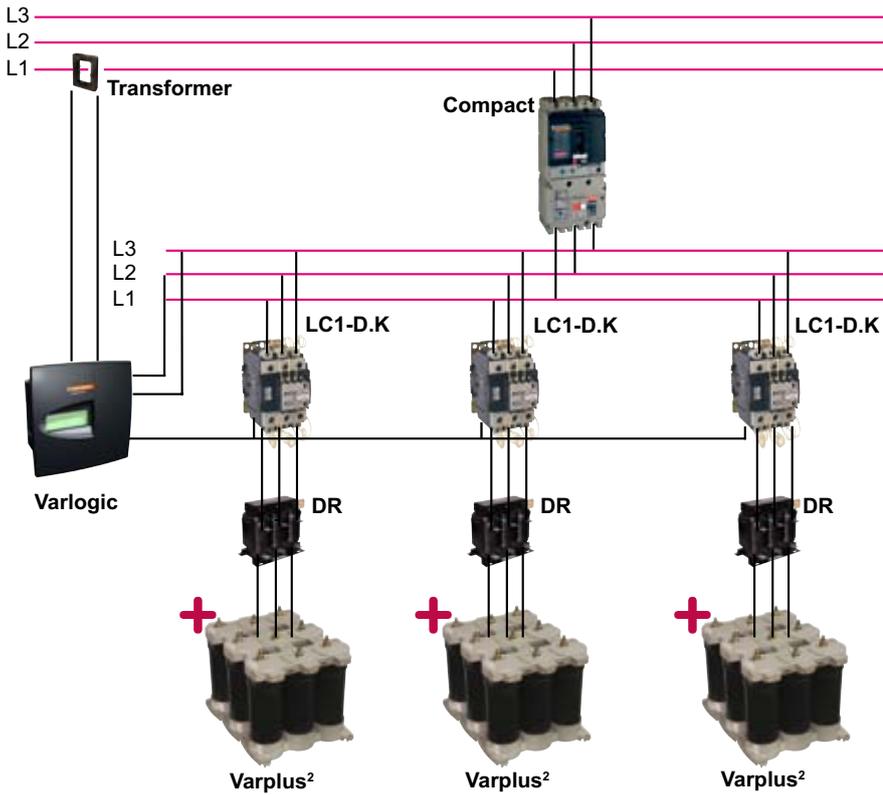


> Energy Efficiency benefits

A power factor correction solution will allow to:

- > Reduce electricity invoice up to 10%
- > Increase available power up to 30%
- > Master the harmonics levels up to 50% THDi.

Solution diagram



> Products used

Product	Description	Unit	Reference	Index page
Varplus ²	Capacitor IP00, 16.60 kvar	3	51335	p. 138
Varlogic	NR6 Controller, 6 steps	1	52450	p. 138
Compact	Compact NS	1	29630	p. 138
DR	Self antiharmonic	3	52406	p. 138
LC1-D.K	Contacteur	3	LC1-DWK12	p. 139
Transformer	Current transformer	1	-	-

> HVAC Control

Automate lighting, temperature and shutter control in office buildings



Customer's needs

The facility manager wants to realise substantial energy savings by controlling all the parameters of lighting, heating and shutters and further to be able to extend easily the system at any time without laying new cables.

Distributor recommendation

With the KNX bus system all devices will be connected via a single bus line. When you activate a sensor (example: a pushbutton), an actuator (example the roller shutter control) will carry out all the switching commands required. For this demand we will use a multi-function pushbutton in association with a brightness and presence sensor and with lighting, heating and sunblind actuators.

+ Energy Efficiency core products

KNX ARTEC multi-function push-button with room temperature control unit. Convenient control unit with 4 operating buttons with room temperature control unit and display:

- Functions of the multi-function push-button:
 - Switching, toggling, dimming, blind control, pulse edges trigger, alarm functions, cyclic reading of external temperature values,...
- Functions of the room temperature control unit:
 - Type of control: 2-step control, continuous PI control, switching PI control (PWM)
 - Output: continuous in the range 0... 100% or switching On-Off.

> Zoom on

KNX
Bus system
components!



KNX multi-function pushbutton



→ Detailed sheet
page 123
of this catalogue

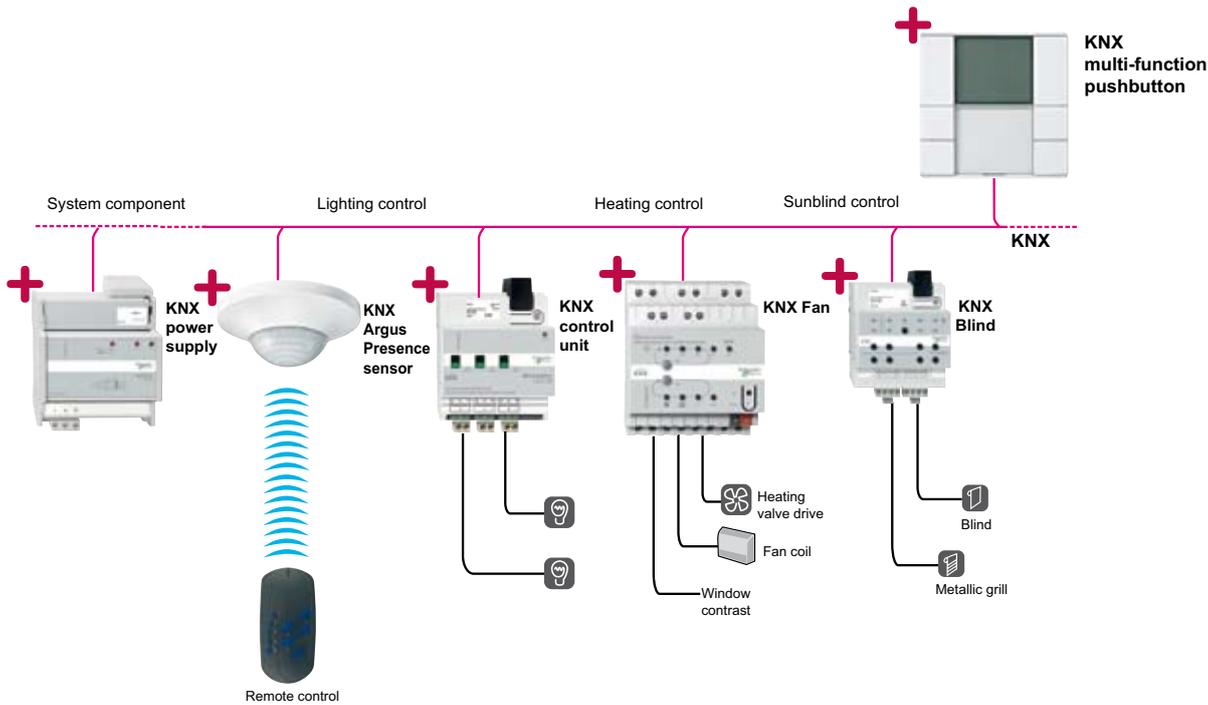
→ A complete list of
product is available
in Index
(Cf. page 138
of this catalogue)



> Energy Efficiency benefits

- > Energy saving by automatically extinguishing when it is not necessary.
- > Automation avoids relying on uncertain human action and secure savings while providing increased comfort and safety.

Solution diagram



> Products used

Product	Description	Unit	Reference	Index page
KNX multi-function	Multi-function pushbutton with room temperature control unit	1	MTN628719	p. 139
KNX Power supply	Power supply 160 REG-K	1	MTN683329	p. 139
KNX ARGUS	ARGUS Presence with constant lighting control and IR receiver	1	MTN630919	p. 139
Remote control	IR-remote control Distance 2010	1	MTN570222	p. 139
KNX Control unit	Control unit 0-10 V REG-K	1	MTN646991	p. 139
KNX Fan	Fan coil actuator	1	MTN645094	p. 139
KNX Blind	Blind actuator REG-K	1	MTN649804	p. 139

> HVAC Control

Combine lighting, temperature and shutter control in office buildings



Customer's needs

The facility manager of an office building wants to increase the users comfort in offices and realise elementary energy savings by controlling lights and heating.

Distributor recommendation

The use of a KNX bus system enables to connect via a single bus line a multi-function pushbutton in combination with lighting and heating switch actuators and with a presence detector. With this intelligent system, lighting will be dependent on people's presence and heating control will be adjusted at the requested temperature and set into standby whenever a window is opened.

+ Energy Efficiency core products

- KNX ARTEC multi-function pushbutton with convenient control unit with 4 operating buttons with room temperature control unit and display:
 - Functions of the multi-function push-button:
 - Switching, toggling, dimming, blind control, pulse edges trigger, alarm functions, cyclic reading of external temperature values ...
 - Functions of the room temperature control unit:
 - Type of control: 2-step control, continuous PI control, switching PI control (PWM)
 - Output: continuous in the range 0...100% or switching On-Off.
- KNX ARGUS Presence:
 - Angle of detection: 360°
 - Range: a radius of max. 7 m from installation site (at a mounting height of 2.50 m).
 - Number of zones: 136 w. 544 switching segments
 - Light sensor: infinitely adjustable from approx. 10 to 1000 lux using the ETS.

> Zoom on

KNX
Bus system
components!



KNX multi-function pushbutton



KNX ARGUS



→ Detailed sheet
page 123
of this catalogue

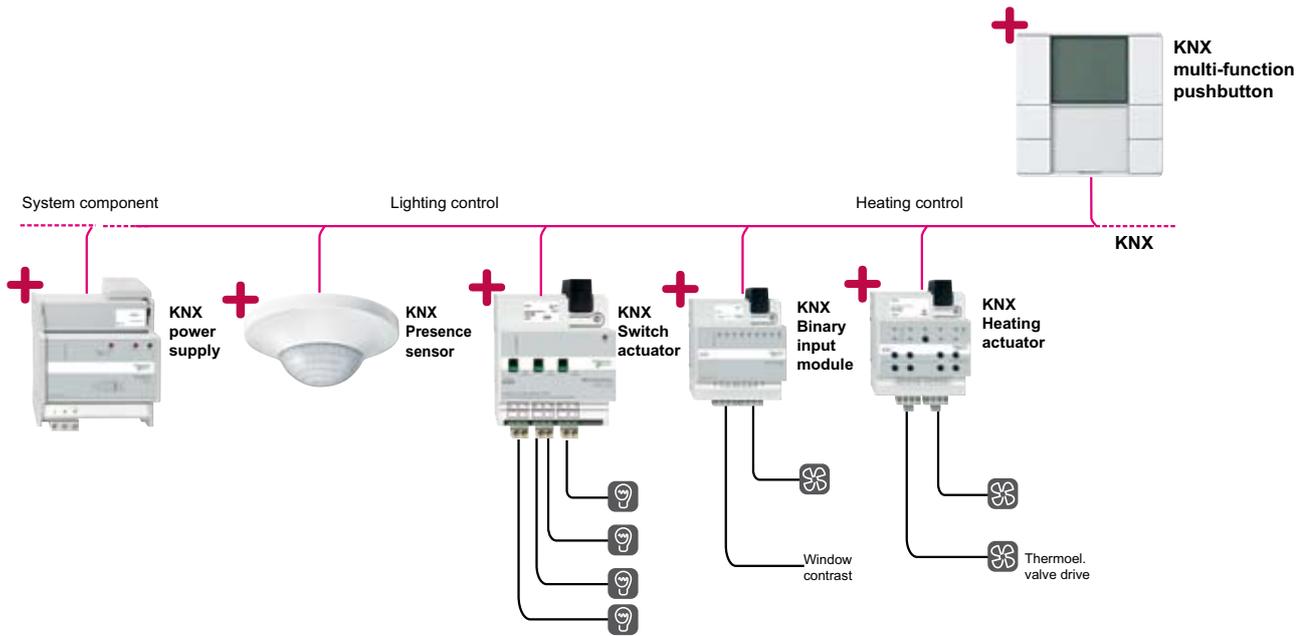
→ A complete list of
product is available
in Index
(Cf. page 138
of this catalogue)



> Energy Efficiency benefits

- > Energy saving by automatically extinguishing when it is not necessary.
- > Automation avoids relying on uncertain human action and secure savings while providing increased comfort and safety.

Solution diagram



> Products used

Product	Description	Unit	Reference	Index page
KNX multi-function	Multi-function pushbutton with room temperature control unit	1	MTN628719	p. 139
KNX Power supply	Power supply 160 REG-K	1	MTN683329	p. 139
KNX ARGUS	ARGUS Presence	1	MTN630819	p. 139
KNX Switch	Switch actuator REG-K	1	MTN649204	p. 139
KNX Binary	Binary input REG-K	1	MTN644492	p. 139
KNX Heating	Heating actuator REG-K	1	MTN645129	p. 139

> HVAC Control

Ensure effective operation of a cooling tower fan



Customer's needs

In an operation involving heat extraction from process cooling water, the customer wants to maximise the energy efficiency of the cooling tower, and reduce the electricity bill.

Distributor recommendation

Using a variable speed drive, you can start the fan and control its speed. The drive is equipped with built-in PID control, and can even be connected to a building management system.

+ Energy Efficiency core products

The Altivar 21 drive is easily integrated into building management system (BMS) as it offers several communication cards as options, LonWorks, BACnet, METASYS N2, APOGEE FLN:

- Optimise and regulate water temperature in the heat rejection loop of the chilled water system
- Increase the fan speed when more cooling is needed
- Decrease the fan speed when there is little demand for cooling.

> Zoom on

ATV 21

A new breath for your applications!



ATV21HU75N4



→ Detailed sheet page 113 of this catalogue

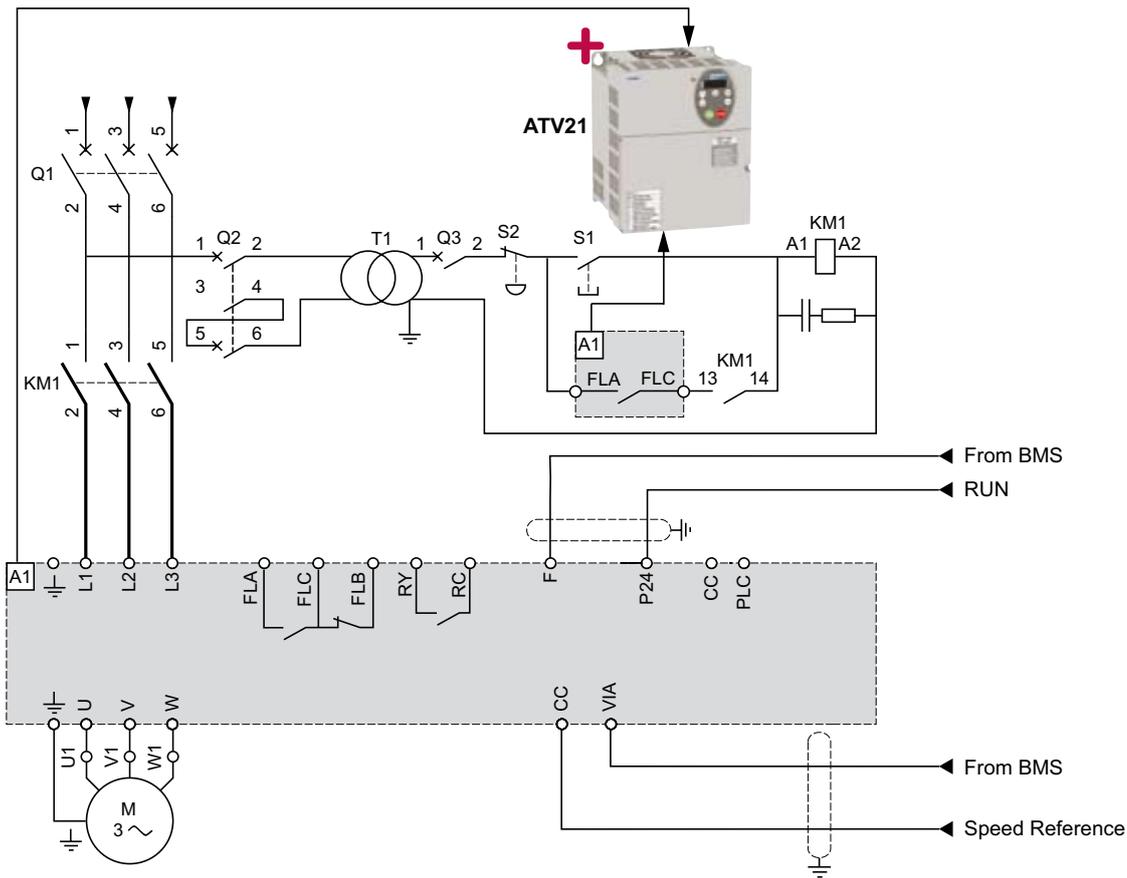
→ A complete list of product is available in Index (Cf. page 138 of this catalogue)



> Energy Efficiency benefits

> Speed control can generate huge energy savings in these applications. The return on investment is very short, usually between 9 and 24 months by reducing the electricity bill for large office buildings, hospitals and schools.

Solution diagram



> Products used

Product	Description	Unit	Reference	Index page
ATV 21	Variable speed drive	1	ATV21HU75N4	p. 138
Q1	Circuit breaker	1	GV2L20	p.139
KM1	Contactor	1	LC1D09M5	p.139
Q2	Circuit breaker (rated at twice the nominal primary current of T1)	1	GV2L	p.139
Q3	Control circuit breaker	1	GB2CB05	p.139
S1, S2	Pushbuttons	1	XB2B or XA2B	p.139
T1	100 VA transformer 220 V secondary	1	-	-

> HVAC Control

Manage load shedding of your home electrical installation



Customer's needs

The homeowner would like to reduce his electricity bill by reduction of subscribed demand while avoiding breaking of the central circuit breaker when power consumption exceeds the power subscribed.

Distributor recommendation

Installing a CDS load shedding contactor will permit to temporarily stop supply to non-essential circuits and reduce output power.

+ Energy Efficiency core products

- CDS are especially designed to manage load shedding of electrical loads in residential and tertiary installations up to 36 kVA
- The CDS single-phase load-shedding contactor sheds and restores loads in cascade of 2 non-priority circuits (heating) in order to supply the priority circuit (lighting) according to the setpoint defined by the user (threshold set by knurled knob on the front face of the CDS)
- The CDS reference 15908 is a single phase load-shedding contactor of 2 circuits in cascade mode.

> Zoom on

CDS

Prevent over-consumption!



CDS



→ Detailed sheet page 117 of this catalogue

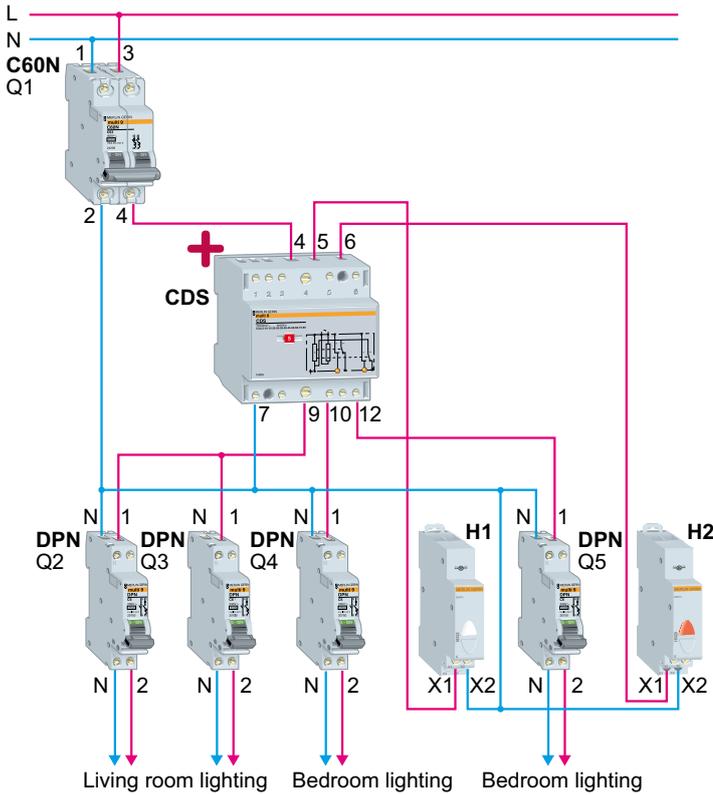
→ A complete list of product is available in Index (Cf. page 138 of this catalogue)



> Energy Efficiency benefits

- > Reduce electricity bill by reduction of the power subscribed.
- > Increase the number of loads that can be managed without increasing subscribed demand.
- > Enhance continuity of supply: as soon as the power consumed approaches the power set, CDS sheds non-priority loads in cascade.

Solution diagram



- The references and characteristics of C60 breakers depend on the installed power and type of load
- Indicator lights H1 and H2 indicate the load shed circuit
- All the power circuits (heating, lighting) must be protected by circuit-breakers

> Products used

Product	Description	Unit	Reference	Index page
CDS	Load-shedding contactor	1	15908	p. 138
C60N	MCB 2 poles	1	24206	p. 138
DPN	MCB 1 pole + N	4	24189	p. 138
H1	White indicator	1	16194	p. 138
H2	Red indicator	1	16192	p. 138

> HVAC Control

Manage ventilation in hotel bathroom



Customer's needs

The hotel manager wishes to lower the electrical energy consumption while providing guests with maximum comfort by installing an automatic bathroom ventilation system.

Distributor recommendation

Ensure that the bathroom ventilation system is operational while the bathroom is in use and that it remains on only for a few minutes after the light has been switched off.

A time-delay relay is used to prevent the extractor from switching off immediately and to ensure that it remains on during an adjustable time-delay period.

+ Energy Efficiency core products

The solution is to use an RTC relay to supply the extractor when the bathroom light is switched on:

- The ON-OFF switch controls the lighting and ventilation at the same time
- When the hotel guest switches off the lighting, the RTC relay continues to operate the ventilation
- The ventilator stops after a preset operating time to ensure that any unpleasant smells and moisture are removed but prevents energy waste.

> Zoom on

RTC

Just enough!



RTC



→ Detailed sheet page 130 of this catalogue

→ A complete list of products is available in Index (Cf. page 138 of this catalogue)

> HVAC Control

Manage water heating in public buildings



Customer's needs

The technical supervisor of the city council wants to increase user comfort and make energy savings by controlling water heating in public buildings.

Distributor recommendation

In public buildings, hot water tanks may be controlled by the combination of an IHP 1c programmable time switch and a CT contactor, equipped with an ACTc auxiliary contact.

+ Energy Efficiency core products

Different types of operations are available:

- Normal operation:
 - the IHP 1c programmable time switch controls water heating.
- Exceptional override operation:
 - water heating may be started up by the user outside the programmed times, by pressing on the pushbutton.
- Return to normal operation:
 - since the last order received has priority, normal switching takes over again at the time of the next switching operation of the IHP 1c.

> Zoom on

IHP

Efficiency at your fingertips!



IHP 1c



→ Detailed sheet page 121 of this catalogue

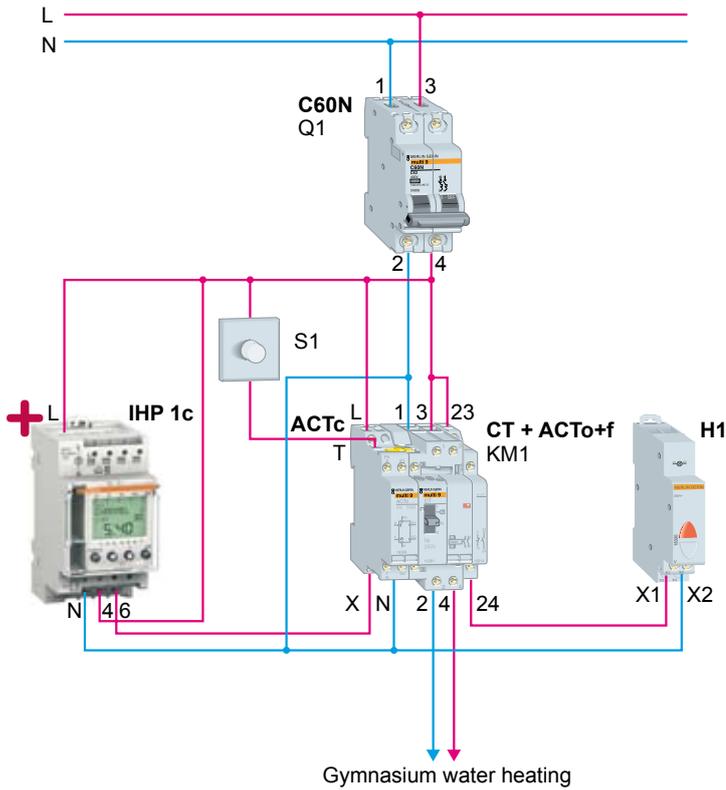
→ A complete list of product is available in Index (Cf. page 138 of this catalogue)



> Energy Efficiency benefits

- > Automation ensures considerable energy saving by automatically extinguishing water heating when it is not necessary.
- > Easy modification of time switch program for special events and vacation avoids useless energy spending.

Solution diagram



> Products used

Product	Description	Unit	Reference	Index page
IHP 1C	Programmable time switch	1	CCT15720	p. 139
C60N	MCB 2 poles	1	24208	p. 138
ACTc	CT auxiliary contactor	1	18308	p. 138
CT	Contactor with manual operation	1	15391	p. 138
ACTo+f	Auxiliary contact for CT contactor	1	15914	p. 138
H1	Red indicator light	1	18320	p. 138

> HVAC Control

Reduce electricity costs and noise in an industrial fan



Customer's needs

The customer wants to maximise energy efficiency of his industrial fan according to demand, reducing his electricity bill. He also wants to remove dust from the plant while reducing noise.

Distributor recommendation

Using a variable speed drive ATV 61, you can start the fan and control its speed. The drive is equipped with built-in PID control, and can even be connected to a building management system or through industrial communication link. A solution in IP54 is also available for specific environment.

+ Energy Efficiency core products

Altivar 61 is the right solution to decrease or increase the fan speed according to the demand. By the way, it reduces energy consumption and increases the comfort of the people around:

- This drive is also easily integrated into building management system or industrial networks as it offers all possibilities of communication cards in option
- Thanks to macro-configurations, and "Simply Start" menu, Altivar 61 allows an immediate starting and fast settings.

> Zoom on

ATV 61

In the heart of your applications!



ATV61HD75N4



→ Detailed sheet page 114 of this catalogue

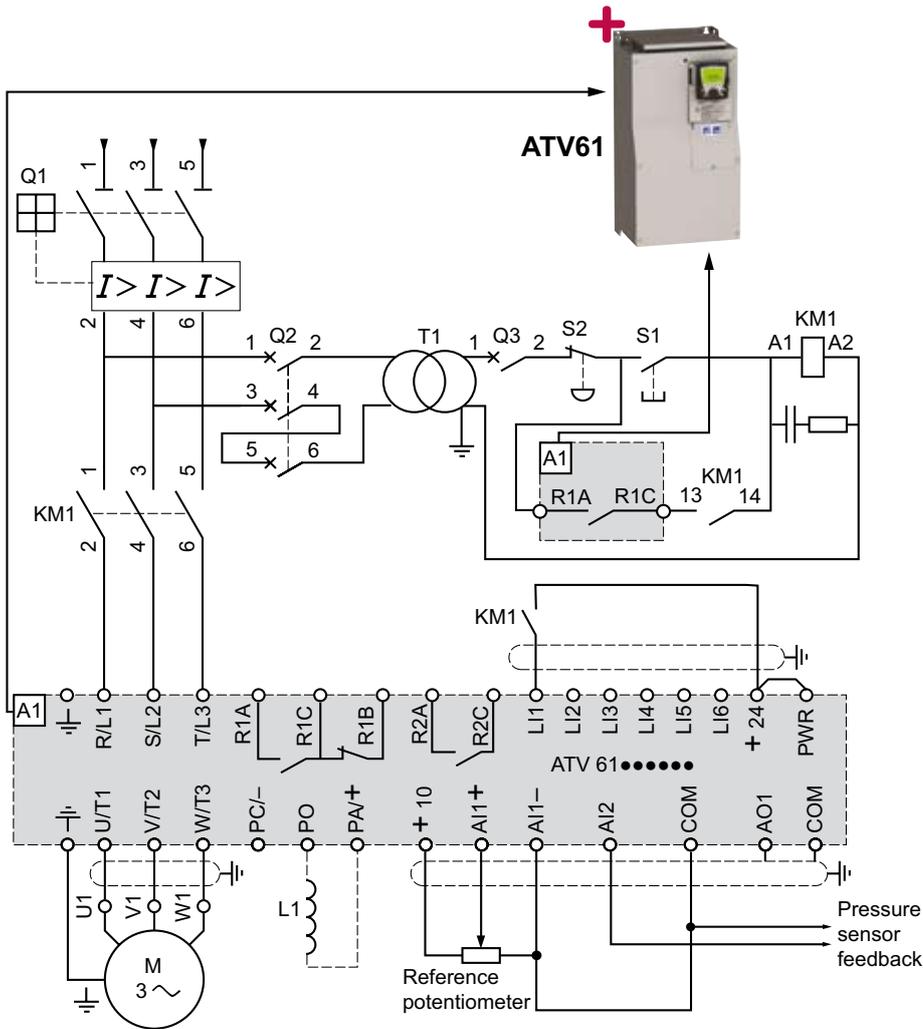
→ A complete list of product is available in Index (Cf. page 138 of this catalogue)



> Energy Efficiency benefits

- > Energy saving reduces electricity bill for industrial plants with large power fans.
- > Adding a speed drive in the installation avoids using a fan running at full speed with a damper partially closed.
- > Remember, controlling a fan at 80% of its nominal speed can divide your energy bill by 2!

Solution diagram



> Products used

Product	Description	Unit	Reference	Index page
ATV 61	Variable speed drive	1	ATV61HD75N4	p. 138
KM1	Contacteur	1	LC1F185M5	p. 139
L1	DC choke	1	VW3A4511	p. 139
Q1	Circuit breaker	1	NS250NMA	p. 139
Q2	Circuit breaker (rated at twice the nominal primary current of T1)	1	GV2L	p. 139
Q3	Control circuit breaker	1	GB2CB05	p. 139
S1, S2	Pushbutton	1	XB4B or XB5A	p. 139
T1	100 VA transformer 220 V secondary	1	-	-

> HVAC Control

Remotely control electric heating in apartments rented for vacation



Customer's needs

Vacation apartment rental company managers want to switch on the central heating and heat the domestic water in each apartment a short time in advance according to customer arrivals. They also want to save money by controlling heating-related energy expenses. In addition they want to be able to manage all these operations locally or remotely.

Distributor recommendation

Switch on the convector heaters and heat domestic water in the apartments a few hours before the tenants arrive. Switch off automatically with a time-delay control. A remote control to control the convector heaters and hot-water tank for the required period from a fixed or mobile phone can be used for this. The call is routed to the apartment phone number.

+ Energy Efficiency core products

The solution is to use a TRC3, a three-channel remote control for phone networks.

- The switch-on time-delay period is configured during the call
- Switch-on time delay of up to 255 hours
- TRC3 channel 1 controls the heating; channel 2 controls the hot-water tank
- Built-in voice synthesis guides the user by announcing in the selected language:
 - the status of the channel contact
 - the actions needed to switch the required channels on or off and to set the time-delay period.

> Zoom on

TRC

Always connected for more efficient control!



TRC3



→ Detailed sheet page 132 of this catalogue

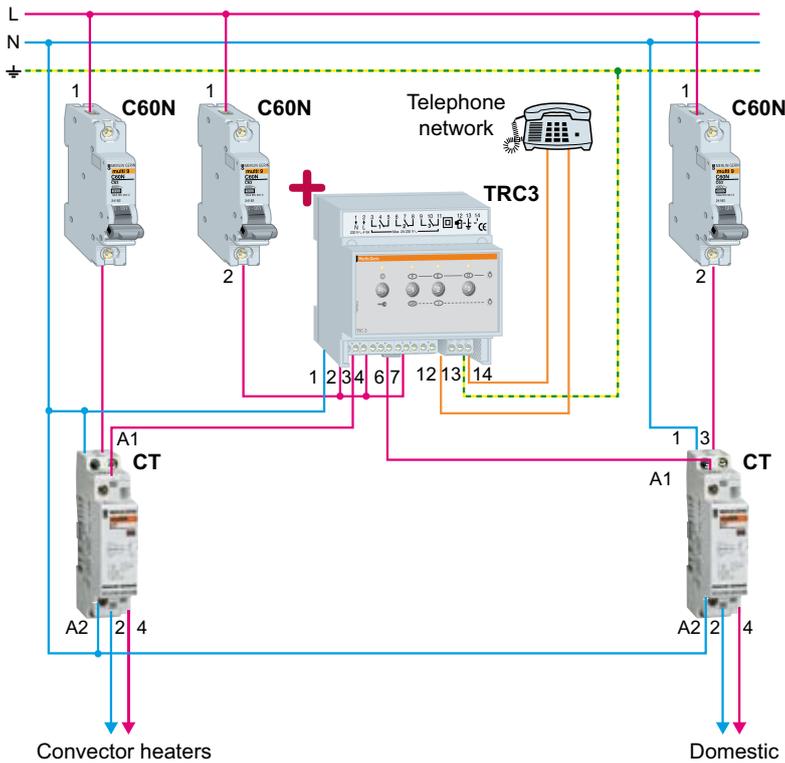
→ A complete list of products is available in Index (Cf. page 138 of this catalogue)



> Energy Efficiency benefits

- > Energy saving thanks to a single telephone call to switch the equipment ON and OFF.
- > Equipment can be controlled from a GSM.
- > Line pick-up is compatible with telephone answering machines and fax machines.

Solution diagram



- To slave the domestic hot water operation to a clock or off-peak dry contact, wire this contact in series with TRC3 contact 6-7
- The CT2 contactor allows ON or OFF manual override of the hot-water tank
- The characteristics of the protection circuit-breakers and contactors depend on the power installed
- The earth connection is mandatory to ensure that the built-in surge arrester operates correctly

> Products used

Product	Description	Unit	Reference	Index page
TRC3	Control for switched network	1	16422	p. 138
C60N	MCB 1 pole	2	24177	p. 138
C60N	8	1	24170	p. 138
CT	Modular contactor 2 poles	2	15381	p. 138

> Lighting Control

Automate lighting for hotel foyer cloakrooms



Customer's needs

The hotel manager wishes to improve user comfort and lower the electrical energy consumption.

Distributor recommendation

A 360° movement detector Argus installed on the ceiling of the entrance hall ensures automatic control of lighting according to brightness level and in the presence of a person.
A switch (optional) hidden from user's view, allows ON override of lighting, if required.

+ Energy Efficiency core products

- The CDM Argus 360 movement detector allows a 360° detection in a radius of 12 m:
 - it ensures automatic lighting of the hall according to a preset brightness threshold
 - the brightness threshold is adjustable between 2000 lux (tripping in broad daylight) and 2 lux (tripping in darkness)
 - the time delay keeps lighting switched on for a preset time after the last movement detection
 - the time delay is adjustable between 10 seconds and 15 minutes.
- Control of single-phase loads without relays up to a power of 1 kW.

> Zoom on

CDM ARGUS

With movement comes light!



CDM Argus 360



→ Detailed sheet page 115 of this catalogue

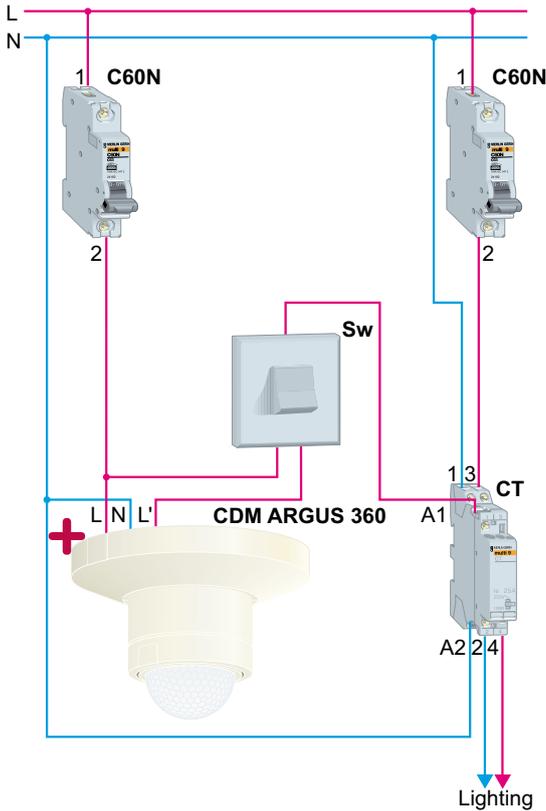
→ A complete list of products is available in Index (Cf. page 138 of this catalogue)



> Energy Efficiency benefits

- > Power saving by automatically extinguishing lighting when it is not necessary.
- > Automation ensures major energy savings, increased comfort and enhanced safety.
- > Absence of a light switch within reach of the public is more hygienic and ensures that lighting is not switched on when it is not needed.

Solution diagram



- The CT contactor and its protection circuit-breaker can be omitted if the installed power is less than 1 kW
- The rating of the CT contactor protection circuit-breaker depends on installed power and load type
- To cancel the switch Sw, connect the CDM Argus 360 output directly to the A1 input of the CT contactor

> Products used

Product	Description	Unit	Reference	Index page
CDM ARGUS 360	Movement detector	1	MTN564419	p. 139
C60N	MCB 1 pole	1	24170	p. 138
C60N	MCB 1 pole	1	24177	p. 138
CT	Modular contactor 2 poles	1	15381	p. 138

> Lighting Control

Automate lighting of a building hall



Customer's needs

The facility manager wants to increase user comfort and make energy savings.

Distributor recommendation

A 360° movement detector Argus installed on the ceiling of the entrance hall ensures automatic control of lighting only in case of presence of a person or of any other motion and according to brightness level.

A switch (optional) hidden from user's view, allows ON override of lighting if required.

+ Energy Efficiency core products

- The CDM Argus 360 movement detector allows a 360° detection in a radius of 12 m:
 - it ensures automatic lighting of the hall according to a preset brightness threshold
 - the brightness threshold is adjustable between 2000 lux (tripping in broad daylight) and 2 lux (tripping in darkness)
 - the time delay keeps lighting switched on for a preset time after the last movement detection
 - the time delay is adjustable between 10 seconds and 15 minutes.
- Control of single-phase loads without relays up to a power of 1 kW.

> Zoom on

CDM ARGUS

With movement comes light!



CDM Argus 360



→ Detailed sheet page 115 of this catalogue

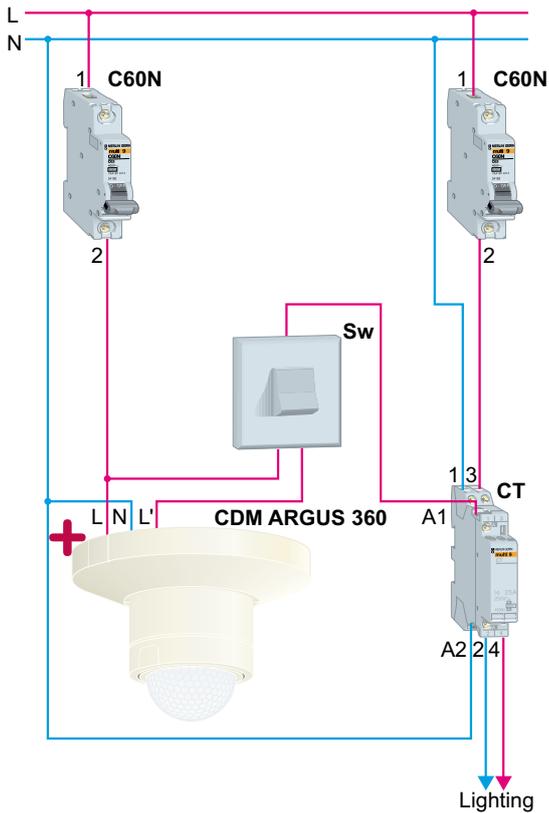
→ A complete list of products is available in Index (Cf. page 138 of this catalogue)



> Energy Efficiency benefits

- > Absence of switches within the reach of users avoids untimely switch-on and leads to power saving.
- > Automation ensures major energy savings, increased comfort and enhanced safety.

Solution diagram



- Parallel connection of several CDMs is possible to cover large surfaces or to ensure coverage of several zones
- The rating of the CT contactor protection circuit-breaker depends on installed power and load type
- To cancel the switch Sw, connect the CDM Argus 360 output directly to the A1 input of the contactor CT

> Products used

Product	Description	Unit	Reference	Index page
CDM ARGUS 360	Movement detector	1	MTN564419	p. 139
C60N	MCB 1 pole	1	24170	p. 138
C60N	MCB 1 pole	1	24177	p. 138
CT	Modular contactor 2 poles	1	15381	p. 138
Sw	Switch	1	-	-

> Lighting Control

Automate lighting of access to your home



Customer's needs

The private home-owner wants to ensure that exterior light automatically turns on when somebody comes in but only when it's dark. It's a matter of energy savings without compromising on comfort or safety.

Distributor recommendation

A 180° movement detector installed at compulsory passing places ensures automatic control of lighting in the presence of a person or of any other motion and according to brightness level.

+ Energy Efficiency core products

- The CDM 180 movement detector allows detection within a 12 m by 6 m range 180°:
 - it ensures automatic lighting of access points according to a preset brightness threshold
 - the brightness threshold is adjustable between 1000 lux (tripping in broad daylight) and 2 lux (tripping in darkness)
 - the time delay keeps lighting switched on during a preset time after the last movement detection
 - the time delay is adjustable between 5 seconds and 12 minutes.
- An optional Sw switch can be associated. It allows ON override of lighting if required
- Control of single-phase loads without relays up to a power of 1 kW.

> Zoom on

CDM

With movement comes light!



CDM 180



→ Detailed sheet page 115 of this catalogue

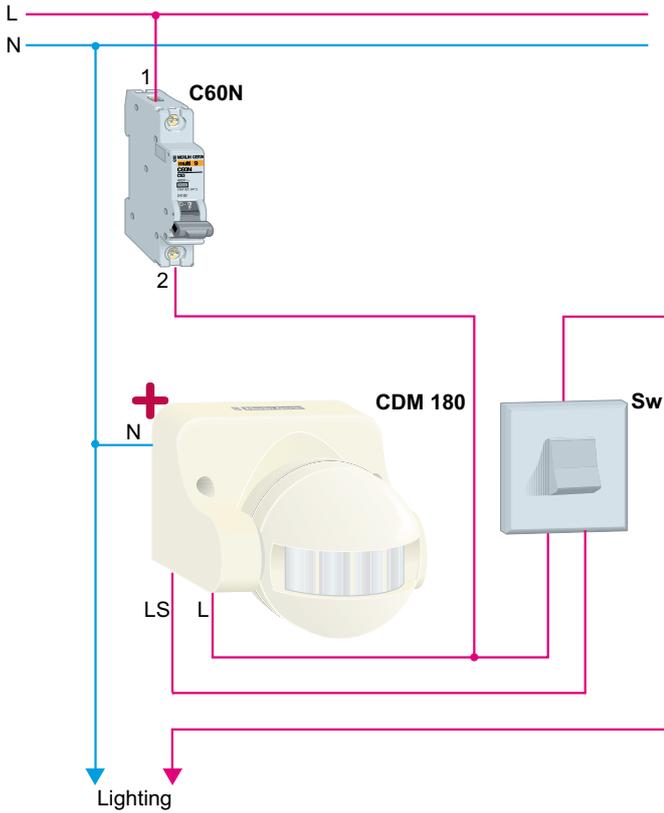
→ A complete list of products is available in Index (Cf. page 138 of this catalogue)



> Energy Efficiency benefits

- > Energy saving by automatically extinguishing lighting when it is not necessary.
- > Automation avoids relying on uncertain human action and secures savings while providing increased comfort and safety.

Solution diagram



- The rating of the protection circuit-breaker depends on installed power and load type
- To cancel the Sw switch, connect directly the lighting circuit to the CDM 180 output LS

> Products used

Product	Description	Unit	Reference	Index page
CDM 180	Movement detector	1	16974	p. 138
C60N	MCB 1 pole	1	24177	p. 138
Sw	Optional switch	1	-	-

> Lighting Control

Automate public lighting according to sunrise and sunset



Customer's needs

The mayor of the commune wants to increase the reliability of public lighting operation to increase the comfort and safety of his citizens. But in the meantime he wants to monitor lighting operation time to make energy savings.

He also wants to emphasise his architectural heritage thanks to night-time lighting.

Distributor recommendation

Use an astronomic programmable light sensitive switch allowing automatic switch-on and switch-off of lighting according to sunrise and sunset times.

+ Energy Efficiency core products

- The IC Astro light sensitive switch is configured only according to the place of installation:
 - either by selection of a country or town
 - or by its geographical coordinates, latitude and longitude.
- A difference in sunrise and sunset times is adjustable separately by ± 120 mn
- Intuitive programming and program saved up to 12 years if mains fail
- ON override external contact.

> Zoom on

IC

With darkness comes light!



IC Astro



→ Detailed sheet page 120 of this catalogue

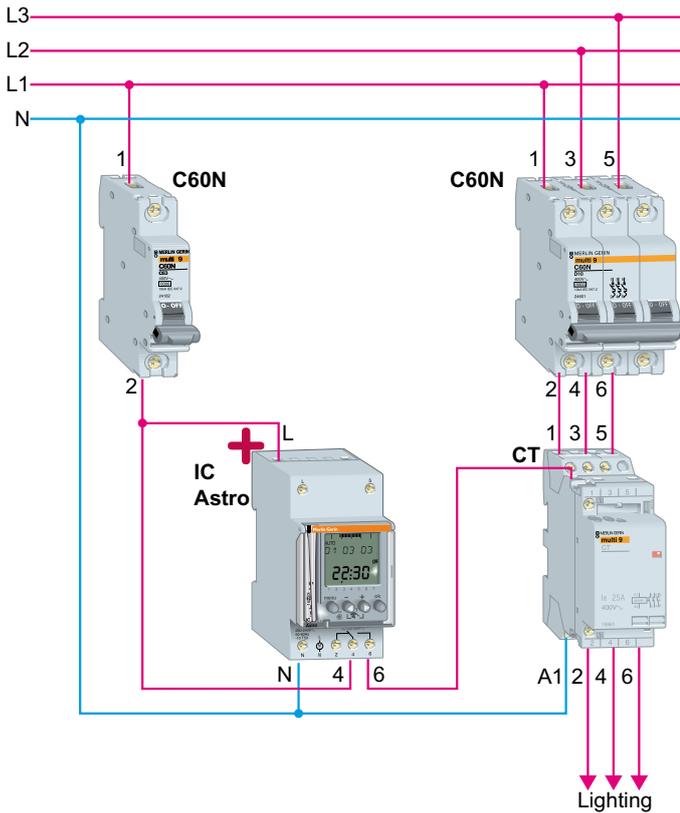
→ A complete list of products is available in Index (Cf. page 138 of this catalogue)



> Energy Efficiency benefits

- > Power saving by automatically extinguishing lighting when it is not necessary.
- > The change to summer/winter time is automatic.
- > Manual override of temporary or permanent ON and OFF status is possible.

Solution diagram



- Maximum admissible power of the IC Astro output contact depends on the load type
- The rating of the CT contactor protection circuit-breaker depends on installed power and load type

> Products used

Product	Description	Unit	Reference	Index page
IC Astro	Light sensitive switch	1	15223	p. 138
C60N	MCB 1 pole	1	24170	p. 138
C60N	MCB 3 poles	1	24215	p. 138
CT	Modular contactor 3 poles	1	15383	p. 138

> Lighting Control

Automate lighting of surroundings of a building



Customer's needs

When a public or tertiary building requires illumination of its surroundings at night-fall, simple time programming is not sufficient to ensure safety and energy saving at the same time as the brightness threshold varies according to season and climate. The site manager wishes to light up the surroundings when the natural brightness threshold becomes insufficient, and switch off automatically when daylight is sufficient again.

Distributor recommendation

The IC 100 light-sensitive switch is the ideal product for problem-free management of these needs. Once installed and its threshold set, it will automatically switch on and turn off the lighting at the right time. A built-in time delay avoids untimely closing or tripping during undesired transient brightness conditions.

+ Energy Efficiency core products

The solution is to set the lighting operation threshold on the IC 100 light-sensitive switch according to the external brightness measured by the wall-mounted cell:

- The photoelectric cell detects low brightness, causes closure of IC 50 contact and ensures lighting
- The IC 100 monitoring light comes on when brightness threshold is reached and switches off lighting
- Time delay on closing and breaking of contact: 10 seconds
- Setting the tripping threshold from 2 to 100 lux.

> Zoom on

IC

With darkness comes light!



IC 100



→ Detailed sheet page 120 of this catalogue

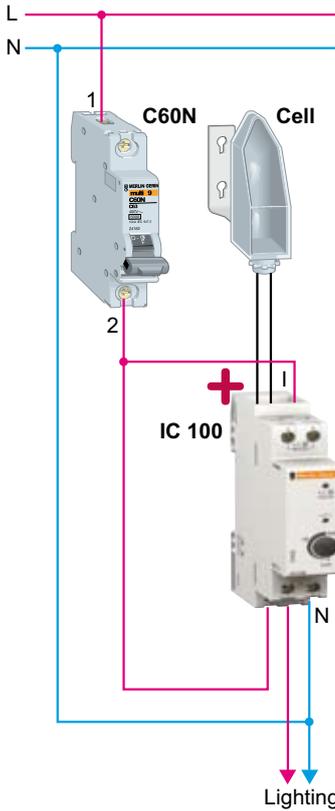
→ A complete list of products is available in Index (Cf. page 138 of this catalogue)



> Energy Efficiency benefits

- > Energy saving by automatically extinguishing lighting when it is not necessary.
- > Automation ensures major energy savings, increased comfort and enhanced safety.

Solution diagram



- For higher powers, relay using a CT contactor and its protective circuit-breaker: their ratings depend on installed power and load type

> Products used

Product	Description	Unit	Reference	Index page
IC 100	Light sensitive switch	1	15482	p. 138
C60N	MCB 1 pole	1	24170	p. 138
Cell	Wall-mounted cell	1	CCT15268	p. 138

> Lighting Control

Control lighting in classrooms



Customer's needs

The training room fluorescent lights must come on when the presence of students in the room is detected, but only when the natural lighting is insufficient.

They must go off when the natural lighting is sufficient or as soon as the room is empty, leading to energy saving.

Distributor recommendation

Thanks to the CDP ARGUS presence detector's lighting control, which is dependent on movement and brightness, only classrooms which are actually in use will be lit.

+ Energy Efficiency core products

- The CDP ARGUS allows the lighting to be set from 10 to 1000 lux
- It detects the slightest motions within a radius of 14 metres at a mounting height of 2.5 metres
- Thanks to the 2 relay outlets not only the lighting but also the HVAC can be controlled with just one device
- You can also manually switch the lighting ON and OFF at any time using a pushbutton.

> Zoom on

CDP ARGUS

Keeping energy costs down!



CDP ARGUS



→ Detailed sheet page 116 of this catalogue

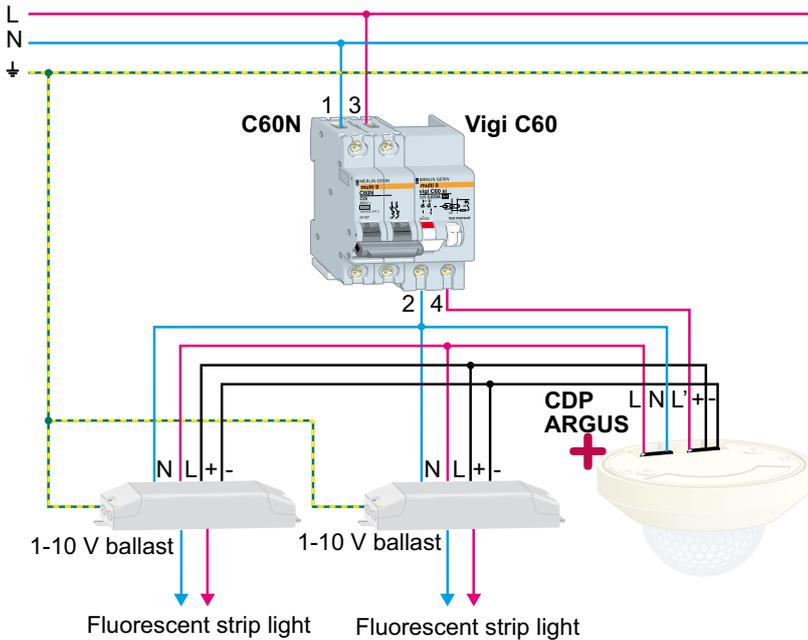
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> Energy Efficiency benefits

- > Automation ensures considerable energy savings.
- > Additional energy saving potential can be gained by including the heating or air conditioning in the system: example by using night economy when no movement is detected.

Solution diagram



- The maximum switching current per relay:
 - 10 A, AC 230 V, cos phi 0.6
 - Incandescent lamp max. 2300 W
 - Halogen lamp max. 2000 W.
- The diagram shows the TT earthing system used in France:
 - The earthing system must be appropriate with the regulations in force in the country where the lighting is in use.

> Products used

Product	Description	Unit	Reference	Index page
CDP ARGUS	Argus presence detector	1	MTN550590	p. 139
Vigi C60	Add-on residual current module	1	26549	p. 138
C60N	MCB 2 poles	1	24204	p. 138

> Lighting Control

Control office lighting locally



Customer's needs

The facility manager wants to optimise his operating cost by saving lighting energy in the offices.

Distributor recommendation

Using IHP+2c and TL to control office lighting locally by pushbuttons and centrally by a programmable time switch.

+ Energy Efficiency core products

The solution is to control the lighting of the building:

- by a centralized order transmitted by an impulse type IHP+ 2c to the ATLC+s impulse relay auxiliary
The IHP+ 2c functions provide the benefit of centralised:
 - time programming
 - manual override operation.
- locally by means of push-buttons and benefit from TL functions:
 - blue remote control OFF on the TL
 - manual operation using the TL toggle.

> Zoom on

IHP

Efficiency at your fingertips!



IHP+2c



→ Detailed sheet page 121 of this catalogue

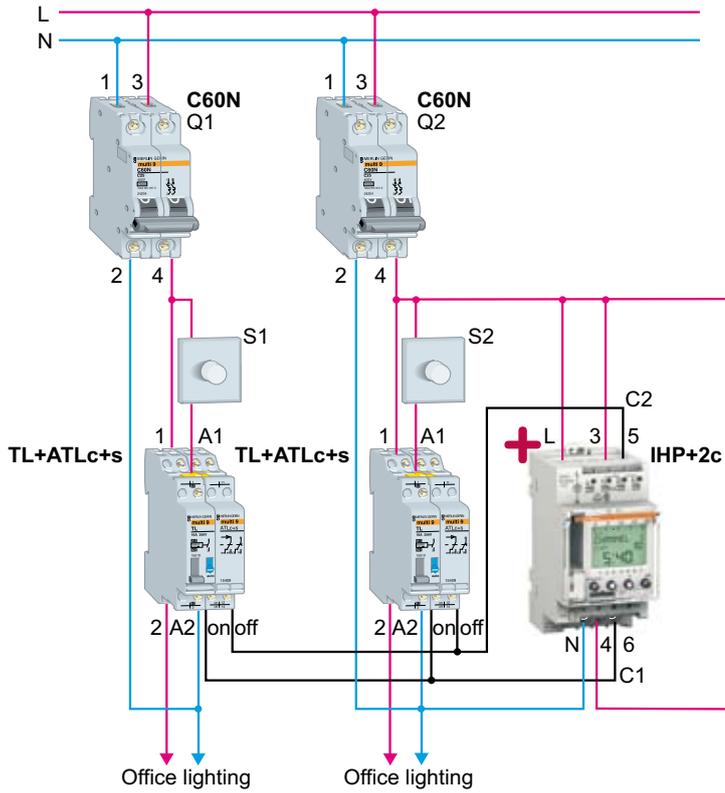
→ A complete list of product is available in Index (Cf. page 138 of this catalogue)



> Energy Efficiency benefits

- > Energy saving by automatically extinguishing lighting when it is not necessary.
- > Easy modification of time switch program for special events and vacation avoiding useless energy spending.

Solution diagram



> Products used

Product	Description	Unit	Reference	Index page
IHP+2c	Programmable time switch	1	CCT15723	p. 139
C60N	MCB 2 poles	2	24204	p. 138
TL	Impulse switch	2	15510	p. 138
ATLc+s	Impulse relay	2	15409	p. 138

> Lighting Control

Create restaurant mood lighting



Customer's needs

The restaurant manager wishes to control separately the lighting in the bar (halogen lighting) and in the restaurant (incandescent lighting) to create different atmosphere and adapt consumption.

Distributor recommendation

The solution is to separate the bar and restaurant lighting systems into two separate areas. Two pushbuttons that can be accessed from the bar are used to vary the lighting manually. The Extra Low Voltage halogen lights in the bar are powered by a remote control dimmer via electronic transformers. The incandescent lights in the restaurant are powered by two associated remote control dimmers.

+ Energy Efficiency core products

- The solution is to create two separate areas controlled by two different types of dimmers:
 - The bar area is lit by extra low voltage lighting:
 - the Tve700 dimmer is associated with TFu electronic transformers
 - The restaurant area is lit by incandescent lights.
- The use of optical coupling to associate the Vo1000 and Tvo1000 dimmers increases the electrical output
- The pushbuttons are used to adjust the brightness:
 - a short press switches the lighting ON or OFF
 - a long press increases or reduces the light output.
- The dimmer direction is stored:
 - a new long press increases or decreases the light output, according to the current dimmer direction.
- No wiring is required, as the dimmers are associated via a fibre-optic BUS.

> Zoom on

TV

Light under your control!



Tvo1000



Vo1000



→ Detailed sheet page 133 of this catalogue

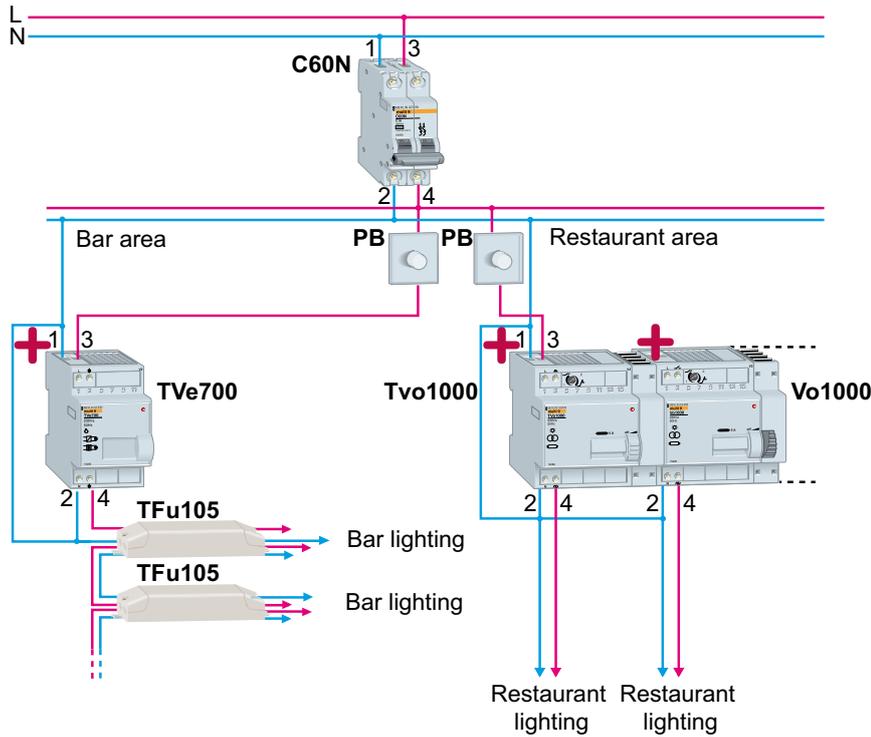
→ A complete list of product is available in Index (Cf. page 138 of this catalogue)



> Energy Efficiency benefits

- > The room lighting can be adapted to the customer's requirements.
- > Dimming your light level ensures major energy saving, increased comfort.

Solution diagram



> Products used

Product	Description	Unit	Reference	Index page
TVe700	Remote dimmer	1	15285	p. 138
Tvo1000	Remote dimmer	1	15289	p. 138
Vo1000	Dimmer	1	15290	p. 138
C60N	MCB 1 pole	1	24170	p. 138
PB	Pushbutton	-	-	-

> Lighting Control

Ensure effective lighting of the entrance of a block of flats



Customer's needs

Shared building premises (entrance halls, cellars, garages,...) have the specific feature of episodic and irregular use. Moreover, they are normally located in dark places requiring lighting at all times of the day and night. Permanent lighting of these places is incompatible with the notion of energy savings.

Distributor recommendation

By using one MINp timer, it is easy to efficiently manage temporary lighting of shared building premises. The early switch-off warning reduces light intensity by 50% just before the end of the period, thus enabling the restart a new 3-minute period in complete safety without reaching total darkness. If permanent lighting is needed (servicing, maintenance,...), the ON override function will ensure continuous operation of lights.

+ Energy Efficiency core products

MINp timer with switch-off warning function integrated in the product:

- The switch-off time delay can be set between 0.5 and 20 min
- 1h fixed time delay is started by pressing the control pushbutton for more than 2 s
- The MINp timers can control lighting up to 3600 W
- Optional override in ON position.

> Zoom on

MIN

Just enough light!



MINp



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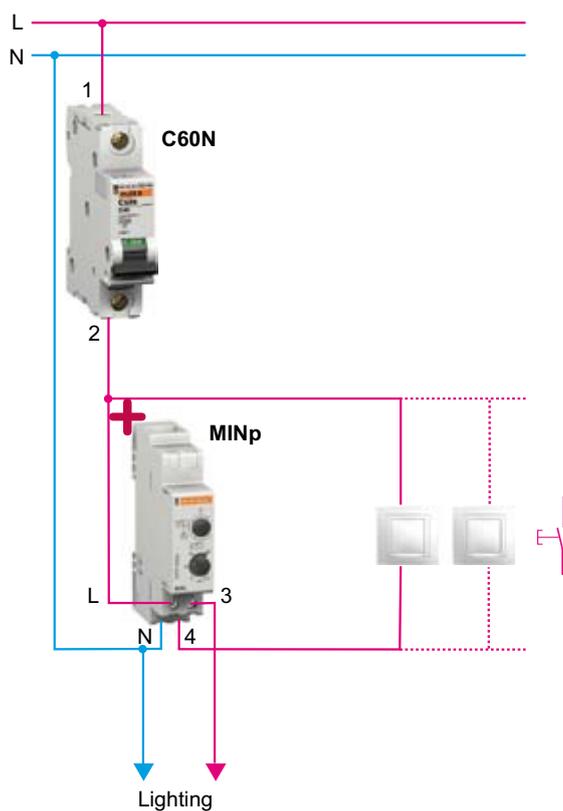
→ A complete list of products is available in Index (Cf. page 138 of this catalogue)



> Energy Efficiency benefits

- > Energy saving by automatically extinguishing lighting when it is not necessary.
- > Comfort and safety increased with the associated early switch-off warning.

Solution diagram



- The MINp timer requires connection of pushbuttons in the installation phase
- For higher powers, relay with a CT contactor and its protective circuit-breaker: their ratings depend on installed power and load type

> Products used

Product	Description	Unit	Reference	Index page
MINp	Timer	1	CCT15233	p. 138
C60N	MCB 1 pole	1	24177	p. 138



> Lighting Control

Manage automatic lighting by presence detection in home



Customer's needs

Parents want to reduce lighting-related energy spending while improving comfort and safety when their children enter the entrance halls, small corridors, garage, laundry rooms, ... and when their hands are not free.

Distributor recommendation

With Unica movement detectors the lighting switches on automatically when we need it. They can be flush or surface-mounted in indoor installation and quickly installed in place of single-circuit switches without changing the wiring.

+ Energy Efficiency core products

Lighting control with the combination of people presence, time delay and luminosity threshold

- Two types of operating modes are available:
 - manual: the load is controlled by push-button
 - automatic: the load is controlled by the detection of movement and by a predefined luminosity threshold.
- Type of loads:
 - incandescent: 230 VAC
 - halogen lamps: 300 W max.

> Zoom on

Unica CDM

Light under your control!



Movement detector switch



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page 134
of this catalogue

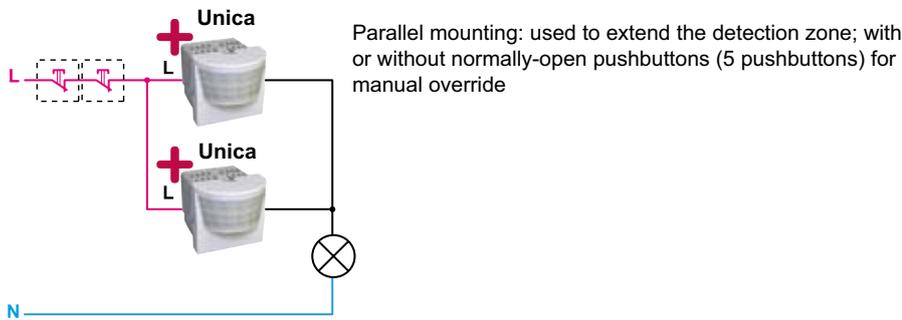
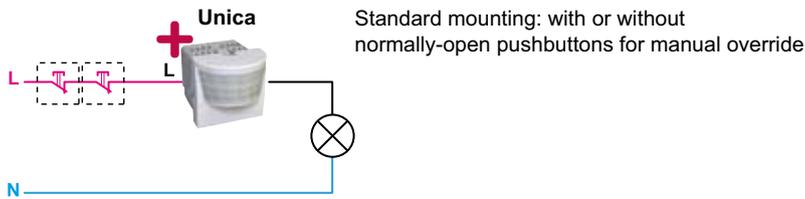
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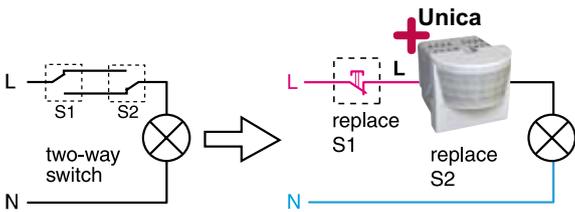
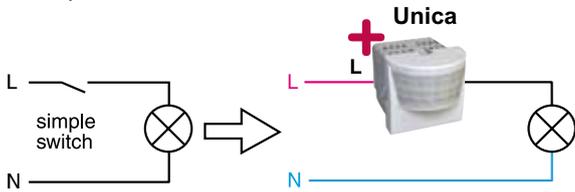
> Energy Efficiency benefits

- > Power saving by automatically extinguishing lighting when it is not necessary.
- > Automation ensures major energy saving, increased comfort and enhanced safety.
- > Lighting time is reduced to the minimum thanks to adjustable time setting from 2 s to 20 minutes and with a luminosity threshold from 5 to 1000 lux.

Solution diagram



Examples of substitution



> Products used

Product	Description	Unit	Reference	Index page
Unica	Movement detector switch 300 W	1 to 3	MGU3.524.18	p. 139
PB	Pushbutton NO	Up to 5	-	-

> Lighting Control

Manage automatic lighting in large areas with movement detectors



Customer's needs

The building manager wants to reduce lighting-related energy consumption and improve user comfort in the large entrance halls, long corridors, large conference rooms,...

Distributor recommendation

With Unica movement detectors the lighting switches on automatically when we need it. They can be flush or surface-mounted in indoor installation.

+ Energy Efficiency core products

Lighting control with combination of people presence, time delay and luminosity threshold

- Two types of operating modes are available:
 - Manual: the load is controlled by pushbutton
 - Automatic: the load is controlled by detection of movement and by a predefined luminosity threshold.
- Type of load:
 - Incandescent lamps: 2300 W max
 - Halogen lamps: 200 W max
 - Low Voltage halogen with transformer: 1150 VA max
 - Dimmable compact fluo lamps: 500 VA max.

> Zoom on

Unica CDM

Light under your control!



Movement detector switch



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of this catalogue

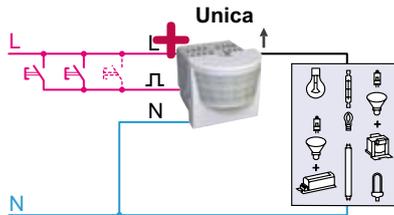
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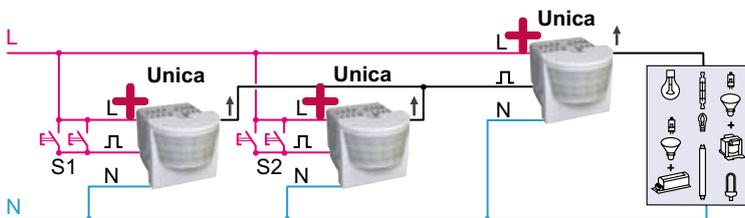
> Energy Efficiency benefits

- > Power saving by automatically extinguishing lighting when it is not necessary.
- > Automation ensures major energy saving, increase comfort and enhanced safety.
- > Lighting time is reduced to the minimum thanks to adjustable time setting from 2 s to 20 minutes and with a luminosity threshold from 5 to 1000 lux.

Solution diagram



Standard mounting using a maximum of 5 normally-open pushbuttons for manual override



Master-slave mounting: 5 slave movement detectors can be connected to a master; used to extend the detection zone; a maximum of 5 normally-open pushbuttons per slave for manual override



> Products used

Product	Description	Unit	Reference	Index page
Unica	Movement detector switch 300 W	1 to 3	MGU3.524.18	p. 139
PB	Pushbutton NO	Up to 5	-	-

> Lighting Control

Manage lighting by detection of presence in office block



Customer's needs

The site manager wants to cut down energy expenses of his office block. To do this, he wants to light up the premises according to the real occupancy and to outside light brightness.

Distributor recommendation

The exhibition hall and offices use a presence detector that controls:

- switch-on of lighting on detection of presence or when ambient light is below the threshold
- switch-off of lighting when outside light is above the threshold, even when people are present.

The conference rooms use a presence detector with remote control that regulates lighting as per presence and ambient brightness and manually adjusts lighting level using remote control.

+ Energy Efficiency core products

- The CDP ARGUS presence detector allows lighting to be set from 10 to 1000 lux
- It detects the slightest motions within a radius of 14 metres at a mounting height of 2.5 meters
- Thanks to the 2 relay outlets not only lighting but also HVAC can be controlled with just one device
- You can also manually switch lighting ON and OFF at any time using a pushbutton.

> Zoom on

CDP ARGUS

Keeping energy costs down!



CDP ARGUS



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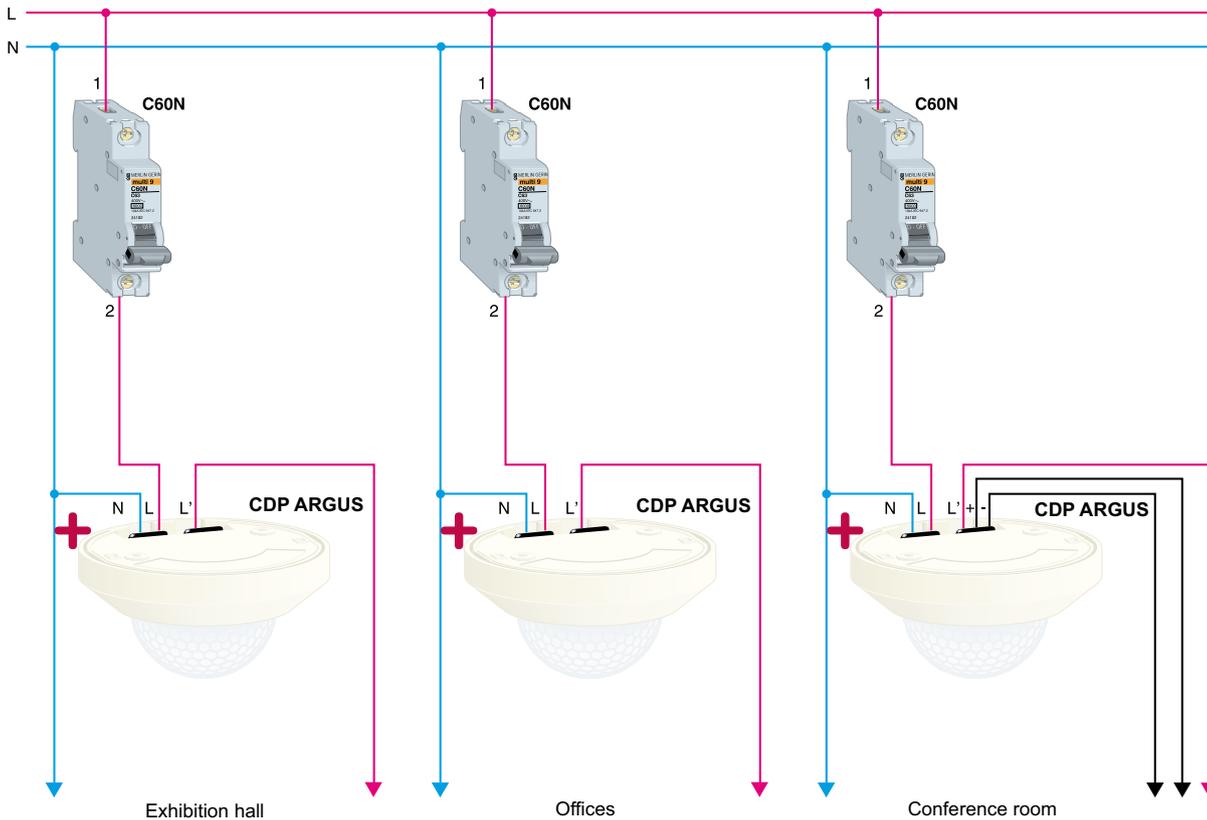
→ A complete list of product is available in Index (Cf. page 138 of this catalogue)



> Energy Efficiency benefits

- > Automation ensures considerable energy savings.
- > Additional energy saving can be gained by including the heating or air conditioning in the system: example by using night economy when no movement is detected.

Solution diagram



- Maximum available power depends on the load type and the number of lights installed
- The rating of the protection circuit-breakers depends on installed power

> Products used

Product	Description	Unit	Reference	Index page
CDP ARGUS	Argus presence detector	3	MTN550590	p. 139
C60N	MCB 1 pole	3	24179	p. 138

> Lighting Control

Manage lighting in a garage



Customer's needs

The private home-owner wants to increase comfort without increasing his energy bill.

Distributor recommendation

Set lighting times to a minimum in passageways using a timer to:

- switch off one or more lights without using two-way pushbutton cabling (impulse relay function); keep lighting on for a pre-set time
 - switch it off automatically.
- Override timer for permanent lighting on need. Use "Switch-off warning" to improve safety.

+ Energy Efficiency core products

The solution is to use a MINt timer:

- Switch-off time delay can be set between 0.5 and 20 min
- 1h fixed time delay can be started by pressing the control pushbutton for more than 2 s
- The MINt timers can control lighting up to 3600 W
- An "impulse relay function" is integrated in the product, allowing the lighting to be switched off or on by pressing a short time on the control pushbuttons
- Automatic selection of the control pushbuttons connection facilitates installation
- Mechanical compatibility with electrical distribution comb busbar enables easy installation on symmetrical rail
- 30 luminous pushbuttons can be installed in parallel (up to 150 mA consumption)
- The integrated "Switch-off warning" function warns that lighting is about to be switched off by flickering of the lamplight.

> Zoom on

MIN

Just enough light!



MINt



→ Detailed sheet page 125 of this catalogue

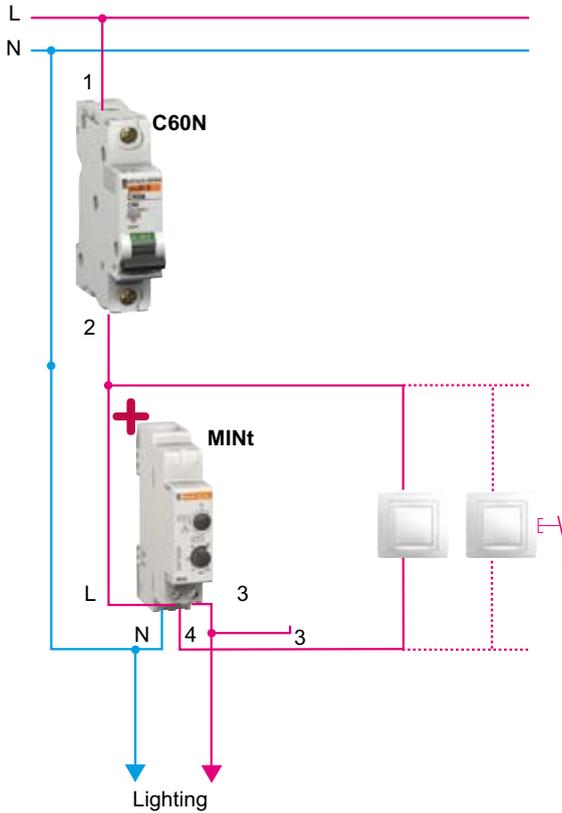
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> Energy Efficiency benefits

- > Automation ensures more energy savings and comfort with silent electronic timers.
- > The “impulse relay” reduces the time the load is switched on.
- > Different override modes (permanent, long duration) cover the various operation needs in the garage (long time repair,...).
- > User safety is increased using "Switch-off warning" function.

Solution diagram



- The protection circuit-breaker rating depends on the installed power
- CT contactor, if the power consumption exceeds 3600 W

> Products used

Product	Description	Unit	Reference	Index page
MINT	Timer	1	CCT15234	p. 138
C60N	MCB 1 pole	1	24177	p. 138



> Lighting Control

Manage lighting in a hotel corridor



Customer's needs

The hotel manager wants to increase user comfort and save on lighting-related energy costs.

Distributor recommendation

Set lighting times to a minimum in passageways using a timer to:

- switch on one or more lights from one or more control points; keep lighting on for a pre-set time
- switch it off automatically.

Override timer for permanent lighting on need. Use "Switch-off warning" to improve user safety.

+ Energy Efficiency core products

- MINs timer associated with PRE switch-off warning
 - The switch-off time delay can be set between 0.5 and 20 min
 - The MINs timers can control lighting up to 2300 W
- Automatic selection of the control pushbuttons connection facilitates installation
- Mechanical compatibility with the electrical distribution comb busbar makes the product easy to install on symmetrical rail
- 30 luminous pushbuttons can be installed in parallel (up to 150 mA consumption).

> Zoom on

MIN

Just enough light!



MINs



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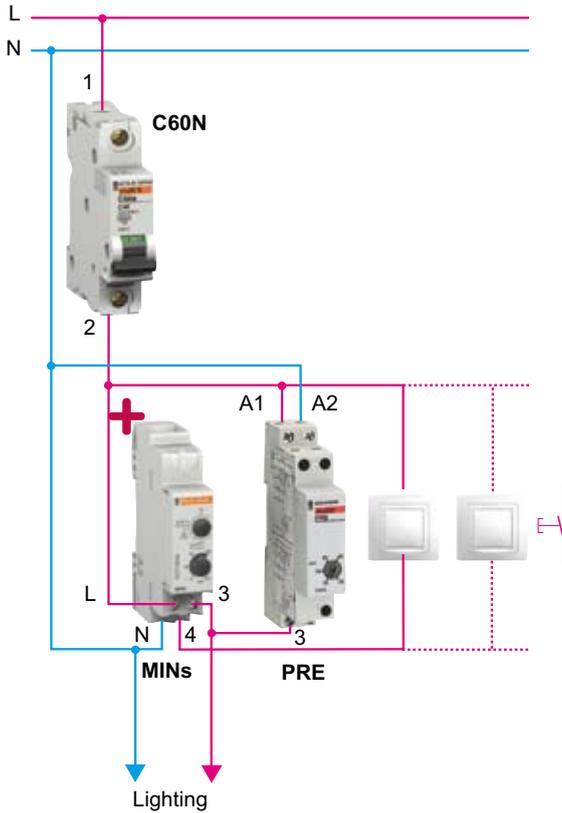
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> Energy Efficiency benefits

- > Automation provides significant energy savings and greater comfort with silent electronic timers.
- > Different override modes (permanent, long duration) cover the hotels various operation needs (cleaning, maintenance,...).

Solution diagram



- The protection circuit-breaker rating depends on the installed power
- CT contactor, if the power consumption exceeds 2300 W

> Products used

Product	Description	Unit	Reference	Index page
MINs	Timer	1	CCT15232	p. 138
C60N	MCB 1 pole	1	24170	p. 138
PRE	Switch-off warning	1	15376	p. 138



> Lighting Control

Manage lighting in building stairways



Customer's needs

Oversight or neglect? A Building manager has observed that the communal area lightings are very often switched-on! He would like to remedy this situation and to reduce lighting-related energy consumption while improving user comfort. His objective is to cut by 10% the related lighting consumption in these areas.

Distributor recommendation

Control the switch-on time with a Unica time delay switch. Additional remote push-buttons could be connected for remote control. The Unica switches can be flush-mounted or surface-mounted in indoor installation with a wide choice of cover frames to fit all the decors.

+ Energy Efficiency core products

- Easy location of the time delay switch in the dark by a large blue locator lamp on the front
- The time delay is adjustable between 2 seconds and 12 minutes
- Lighting control with time delay switches may also be used in entrance halls, corridors, toilets,...

> Zoom on

Unica Timer

Light under your control!



Time delay switch



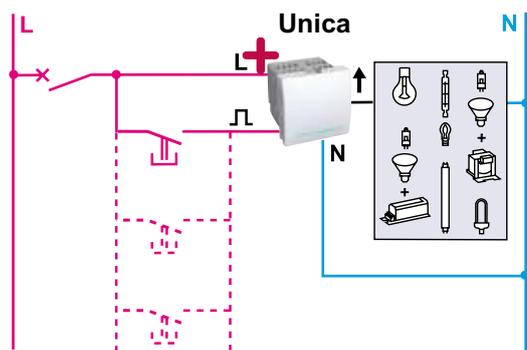
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> Energy Efficiency benefits

- > Just push the button and the lighting switches on, for just as long as you need it.
- > The timer is adjustable from 2 s to 12 min. You can save at least 400 lighting hours per area and per year (one hour less per day).

Solution diagram



Connection diagram: up to 25 normally-open pushbuttons may be connected for remote control



> Products used

Product	Description	Unit	Reference	Index page
Unica	Time delay switch	1	MGU353518	p. 139
C60N	MCB 1 pole	1	24177	p. 138
PB	Pushbutton NO	up to 25	-	-

> Lighting Control

Manage lighting in various parts of a shop



Customer's needs

The shop manager wants to control the energy consumption while maintaining an appropriate lighting level in the different parts of his shop.

Distributor recommendation

A time switch IKEOS offers all the necessary features in a single product:

- Shop and window lighting limited to opening times
- Time delay of storeroom lighting
- Flashing of the illuminated shop sign in association with a light sensitive switch when night falls.

+ Energy Efficiency core products

The ITM multifunctional time switch is used to control 4 output channels (C1 to C4) according to the status of 3 inputs (E1 to E3). The E3 input is conditioned by the level of external brightness controlled by the light sensitive switch.

Output	Use	Type of function used Programming	Input	Type of input used Functions	Connected components
C1	Window lighting	Weekly time programming	-	-	-
C2	Stock room lighting	Timer	E1	Control input	Pushbutton PB
C3	Sales area lighting	Weekly time	E2	Override input programming	Switch Sw
C4	Neon sign	Flashing	E3	Condition input	Light sensitive switch

> Zoom on

IKEOS

Program, time delay, count. IKEOS: let yourself be guided!



IKEOS



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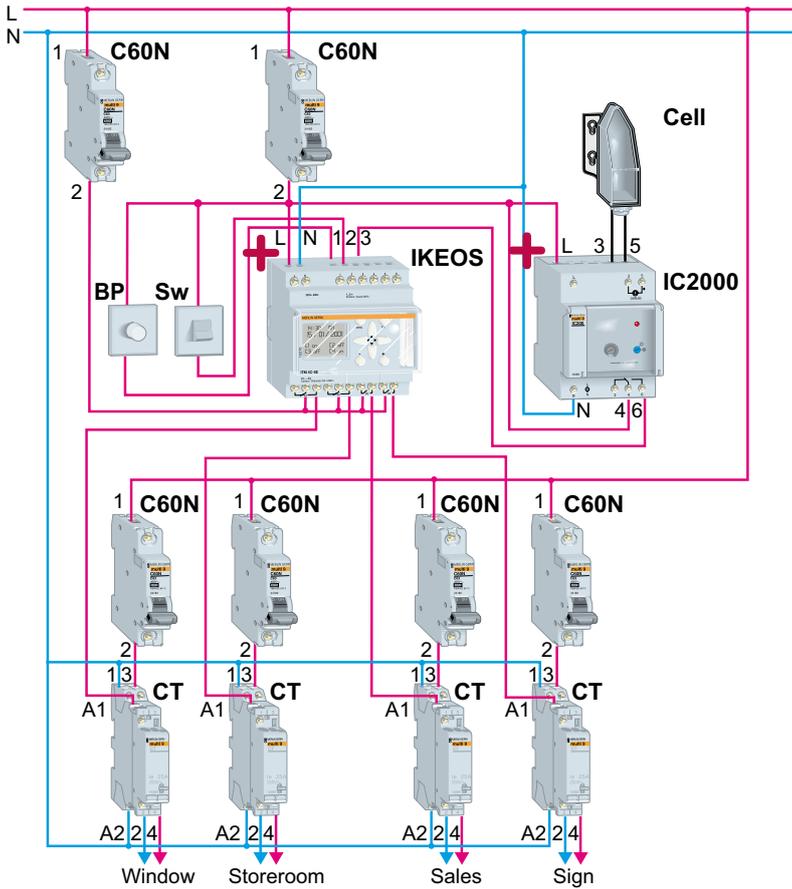
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> Energy Efficiency benefits

- > Automation ensures better control of energy expenses by automatically extinguishing lighting when it is not necessary.
- > Energy saving while emphasising the shop window and lighted signs.

Solution diagram



- Output C1 allows lighting of the shop window at the required times and days
- Output C2, programmed in timer function, receives the operating authorisation from pushbutton PB connected to input E1
- Output C3 authorises lighting of the sales area at the required times and days. It can be forced by the switch Sw cabled to the input E2
- Output C4 makes the shop sign flash when the light sensitive switch connected to E3 enables it to do so

> Products used

Product	Description	Unit	Reference	Index page
IKEOS	ITM Multifunctional switch	1	15270	p. 138
IC 2000	Light sensitive switch	1	CCT15368	p. 138
Cell	Wall-mounted cell	1	CCT15268	p. 138
C60N	MCB 1 pole	2	24170	p. 138
C60N	MCB 1 pole	4	24177	p. 138
CT	Modular contactor 2 poles	4	15381	p. 138
Memory	Memory cartridge	1	15280	p. 138

> Lighting Control

Monitor lighting time and manage the bells in a school



Customer's needs

The school director wants to optimise his operating costs by saving lighting energy and to automatically start school bells at the right time.

Distributor recommendation

Limit the amount of lighting used to the number of hours required for school activities by programming the times during which classrooms and common areas need to be lit. Monitor how long the lighting is used and be informed when the time is exceeded (for maintenance purposes). Program bell operating times and durations.

+ Energy Efficiency core products

- Use IHP+2c programmable time switch to program:
 - on IHP+2c output 1; the days and times when the lighting should be switched on (example: Monday to Friday 8 h 15 to 9 h 30 and 15 h 30 to 18 h 30)
 - on IHP+2c output 2; the day, time and duration of school bell operation using the pulse function (example: Monday to Friday every hour from 8 h 30 to 16 h 30, the bells operate 20 s).
- Use a pushbutton connected to the external input 1 for off-hours timer operations
- 84 switching operations to offer large programming capacities
- Output operating hours counter for maintenance purposes
- Mechanical compatibility with electrical distribution comb busbar for easier installation on symmetrical rail
- Screw-less terminals for easy and fast connection.

> Zoom on

IHP

Efficiency at your fingertips!



IHP+2c



→ Detailed sheet page 121 of this catalogue

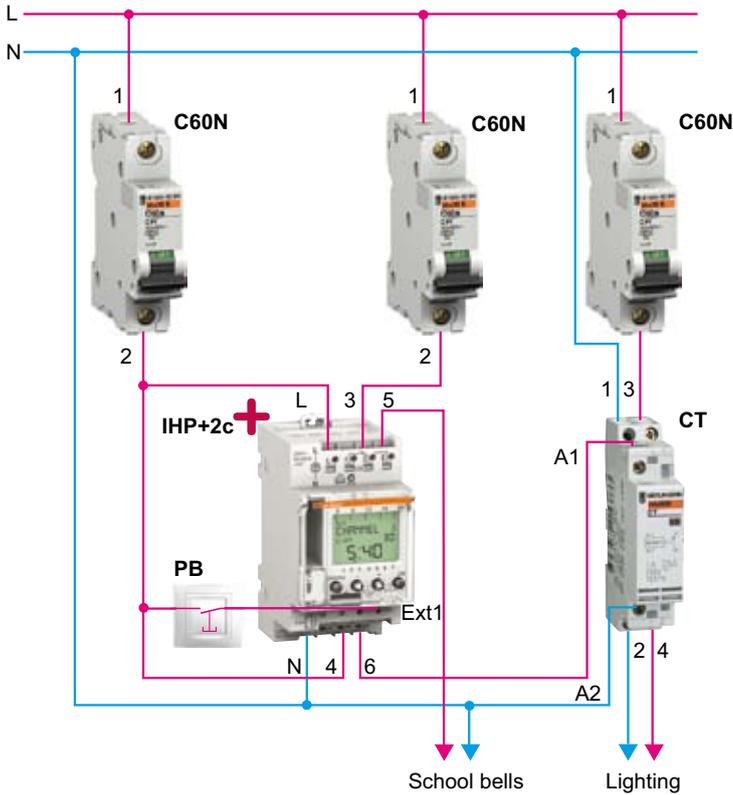
→ A complete list of products is available in Index (Cf. page 138 of this catalogue)



> Energy Efficiency benefits

- > Energy saving by automatically extinguishing lighting when it is not necessary.
- > Easy modification of time switch program for special events and vacation, avoiding useless energy spending.
- > Automatic summer/winter time change.

Solution diagram



- Circuit-breakers to protect the devices and lighting circuits
- CT contactor, to manage the school lighting
- The characteristics of protection circuit-breakers and CT contactor depend on the installed power and type of load

> Products used

Product	Description	Unit	Reference	Index page
IHP+2c	Programmable time switch	1	CCT15852	p. 139
C60N	MCB 1 pole	2	24170	p. 138
C60N	MCB 1 pole	1	24177	p. 138
CT	Modular contactor 2 poles	1	15381	p. 138
PB	Pushbutton	1	-	-

> Lighting Control

Optimise hotel car park lighting



Customer's needs

The hotel manager wishes to optimise car park lighting operation and control energy costs. He wants to increase the hotel guests' comfort and safety.

Distributor recommendation

A light sensitive switch automatically controls the car park lighting (ON or OFF) according to the external brightness and the predetermined light sensitive switch threshold.

+ Energy Efficiency core products

The solution is to set the lighting operation threshold on the IC2000 light-sensitive switch according to the external brightness measured by the wall-mounted cell:

- Adjustable brightness threshold from 2 to 2000 lux
- Screw-less terminals for easy and fast connection
- Delivered rotating wall-mounted cell for easier installation.

> Zoom on

IC

With darkness comes light!



IC2000



→ Detailed sheet page 120 of this catalogue

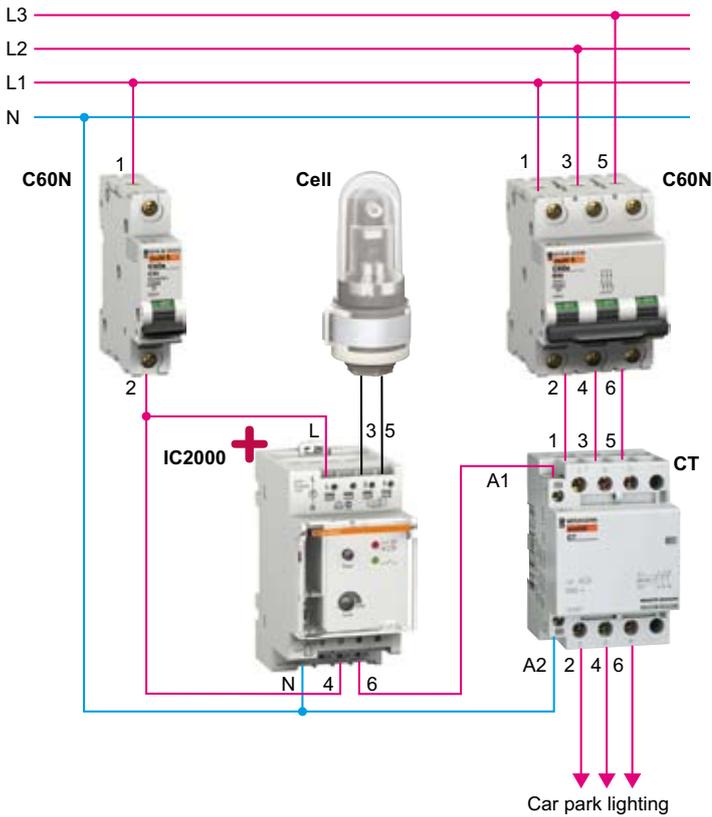
→ A complete list of products is available in Index (Cf. page 138 of this catalogue)



> Energy Efficiency benefits

- > Power saving by automatically extinguishing lighting when it is not necessary.
- > Avoiding relying upon uncertain human action secures savings.
- > A heightened feeling of safety is provided at minimum cost as the lighting is always "ON" when it is dark.

Solution diagram



- Circuit-breakers to protect the devices and the lighting circuits
- CT contactor, if power consumption exceeds 2300 W
- The characteristics of protection circuit-breakers and CT contactor depend on the installed power and type of load

> Products used

Product	Description	Unit	Reference	Index page
IC2000	Light sensitive switch	1	CCT15368	p. 138
C60N	MCB 3 poles	1	24215	p. 138
C60N	MCB 1 pole	1	24170	p. 138
CT	Modular contactor 3 poles	1	15383	p. 138
Cell	Wall-mounted cell	1	CCT15268	p. 138

> Lighting Control

Optimise lighting of technical premises in a hotel



Customer's needs

The hotel manager wishes to reduce the electrical consumption of the technical premises.

Distributor recommendation

Judiciously install a CDM 180 motion detection control switch in the technical premises of the hotel to guarantee automatic control of lighting only when the maintenance technician is present.

+ Energy Efficiency core products

- Compact and economical, a CDM 180 motion detection control switch allows 180° detection and a range from 6 to 12 m according to tilt adjustment and installation height (2.5 m):
 - it ensures automatic lighting when ambient light is insufficient and when it detects a moving heat source
 - its brightness threshold is adjustable between 2 lux (darkness) and 1000 lux (full light)
 - the time delay ensures that lighting is kept ON for a pre-set period of time after the last motion detection (from 5 s to 12 min).
- Optional addition of a switch (or pushbutton) to force operation of lighting if there is no motion detected.

> Zoom on

CDM

With movement comes light!



CDM 180



→ Detailed sheet page 115 of this catalogue

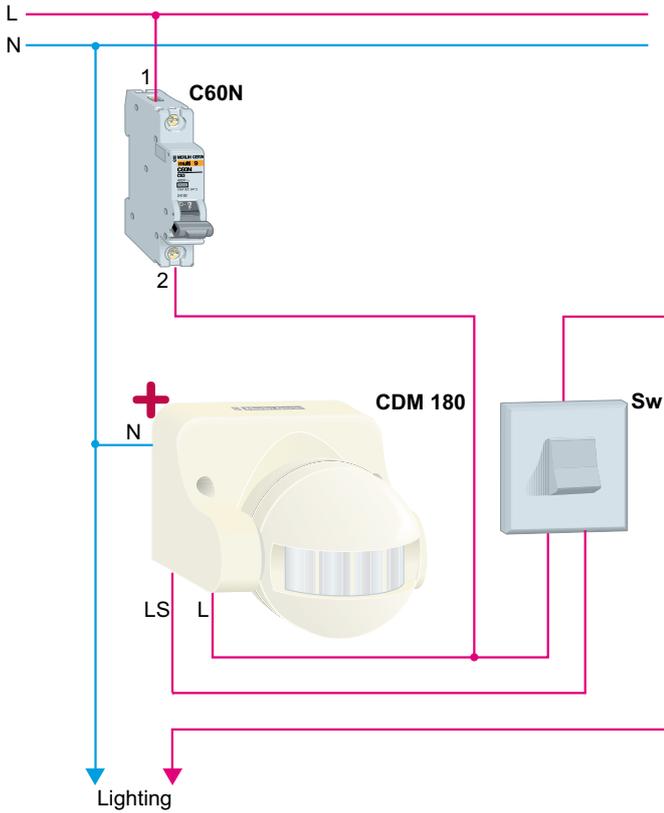
→ A complete list of products is available in Index (Cf. page 138 of this catalogue)



> Energy Efficiency benefits

- > Energy saving by automatically extinguishing lighting when it is not necessary.
- > Automation avoids relying on uncertain human action and secure savings while providing increased comfort and safety.

Solution diagram



- The rating of the protection circuit-breaker depends on installed power and load type
- To cancel the switch Sw, connect the lighting circuit directly to the CDM 180 output LS

> Products used

Product	Description	Unit	Reference	Index page
CDM 180	Movement detector	1	16974	p. 138
C60N	MCB 1 pole	1	24176	p. 138
Sw	Optional switch	-	-	-

> Lighting Control

Optimise room lighting through the use of dimmers



Customer's needs

The homeowner wants to reduce lighting-related energy consumption, change room atmosphere and improve comfort.

Distributor recommendation

Using a dimmer enables the homeowner to control light level independently and allows him to control light sources from one or several control points.

+ Energy Efficiency core products

Four Unica dimmer switches are available, according to the type of load to be controlled, the type of dimming (push button or rotary) and the possibility of associating them with other control devices.

- Unica dimmer switches can:
 - save energy, since dimmed lighting uses less electricity than full power lighting
 - extend the lifetime of the light using the soft-on dimmer function
 - adapt the light level to fit the desired atmosphere in the room
 - regulate the lighting by simply pressing or rotating, according to the choice of product
 - be installed easily without changing the wiring.

> Zoom on

Unica Dimmer

Light under your control!



Dimmer



Dimmer



→ Detailed sheet page 134 of this catalogue

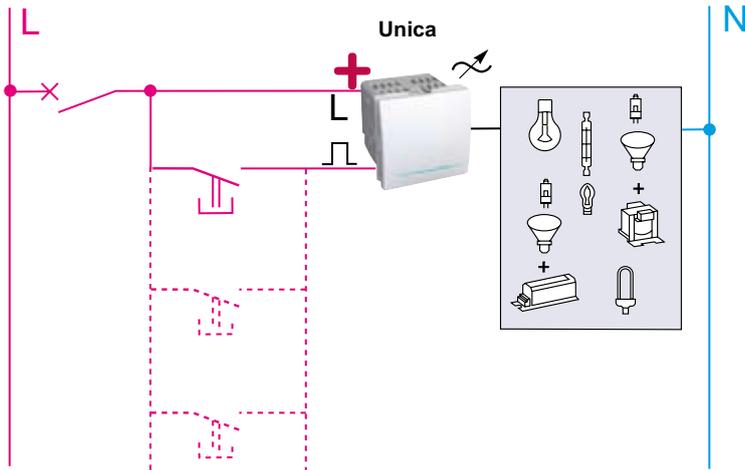
→ A complete list of products is available in Index (Cf. page 138 of this catalogue)



> Energy Efficiency benefits

- > Wall box dimmers allow reduction of energy used for lighting.
- > Instead of having lights only ON or OFF, light level can be adjusted to required level.
- > Dimming your light level by 25% saves 20% in energy.

Solution diagram



> Products used

Product	Description	Unit	Reference	Index page
Unica	Pushbutton dimmer switch	1	MGU351518	p. 139
C60N	MCB 1 pole	1	24177	p. 138
PB	Pushbutton	up to 25	-	-

> Lighting Control

Optimise shop-window lighting



Customer's needs

The shop owner wants to light up the shop window at nightfall and save energy by automatically switching off the lighting late at night when the streets are empty. He wants to prevent the lighting from switching on, on shop closure days.

Distributor recommendation

A programmable light-sensitive switch automatically controls shop-window lighting according to brightness and/or the time of the day.

+ Energy Efficiency core products

- IC2000 P+ light sensitive switch associated with a wall-mounted cell:
 - program on the IC2000P+, the period when you might need light (example: from 9 p.m. to 6 a.m. except Sunday)
 - set the lighting operation threshold on the IC2000P+ according to the external brightness (example: 20 lux).
- Switching the external input on turns on the light permanently
- The IC2000P+ can control lighting up to 2300 W
- Adjustable light level from 2 to 2100 lux
- Adjustable time delay to prevent unwanted operation in case of short variance of light.

> Zoom on

IC

With darkness comes light!



IC2000P+



→ Detailed sheet page 120 of this catalogue

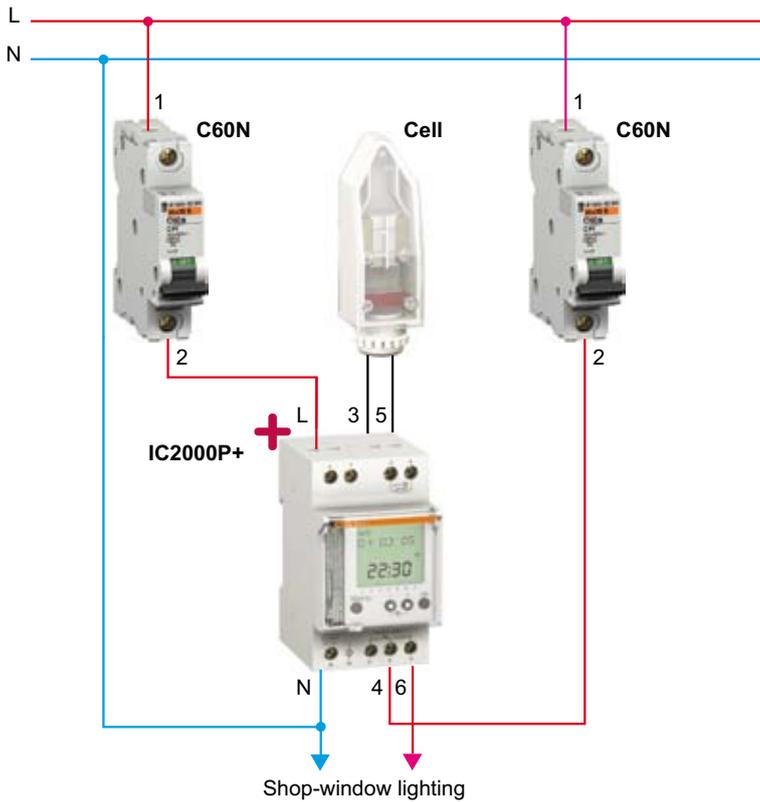
→ A complete list of products is available in Index (Cf. page 138 of this catalogue)



> Energy Efficiency benefits

- > Power saving by automatically extinguishing lighting when it is not necessary and when there are fewer passers-by.
- > The change to summer/winter time is automatic.
- > Excellent shop-window lighting as soon as night starts to fall.

Solution diagram



- Circuit-breakers to protect the devices and lighting circuits
- CT contactor, if power consumption exceeds 2300 W

> Products used

Product	Description	Unit	Reference	Index page
IC2000P+	Light sensitive switch	1	15483	p. 138
C60N	MCB 1 pole	1	24170	p. 138
C60N	MCB 1 pole	1	24177	p. 138
Cell	Wall-mounted cell	1	CCT15268	p. 138



> Motor Control

Optimise pumping for swimming pool



Customer's needs

The private home-owner wants to save energy while optimising the water flow in his filtration system, keeping water moving for chemical dispensers and chlorinator efficiency.

Distributor recommendation

To minimise the pump energy costs, you should operate at the lowest possible flow rate. With a variable speed drive ATV 11 placed between the circuit breaker and the motor, flow variation is achieved by electronically controlling the speed of the motor.

+ Energy Efficiency core products

The Altivar 11 drive combines all the functions that your application requires:

- Reduction of energy consumption
- Flow variation
- Simplicity of use
- Motor protection.

> Zoom on

ATV 11

Real efficiency at a reduced size!



ATV 11



→ Detailed sheet page 112 of this catalogue

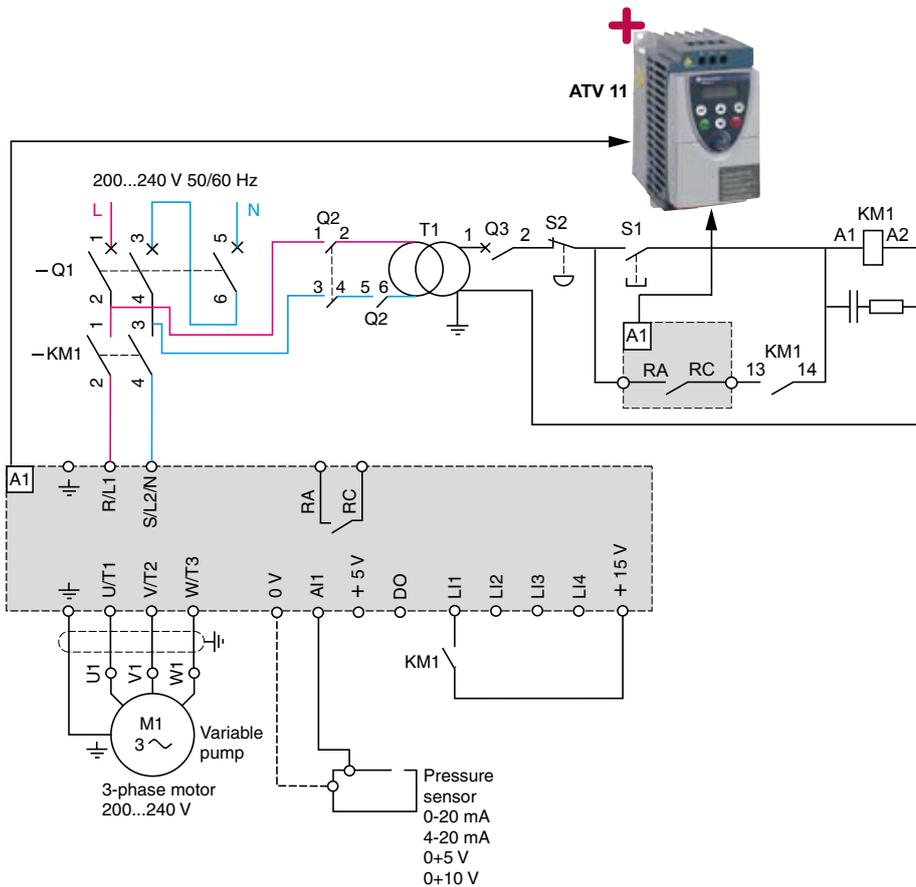
→ A complete list of product is available in Index (Cf. page 138 of this catalogue)



> Energy Efficiency benefits

- > At 80% of the flow, power consumption drops by 50% using a variable speed drive!
- > Energy savings reach huge amounts, optimising water flows for any application, filtration, cleaning, spa and heating...

Solution diagram



> Products used

Product	Description	Unit	Reference	Index page
A1	ATV 11 variable speed drive	1	ATV11HU18M2A	p. 138
Q1	Circuit breaker	1	GV2ME16	p. 139
KM1	Contactor	1	LC1K12	p. 139
Q2	Circuit breaker (rated at twice the nominal primary current of T1)	1	GV2L	p. 139
Q3	Control circuit breaker	1	GB2CB05	p. 139
S1, S2	Pushbutton	1	XB2B or XA2B	p. 139
T1	100 VA transformer 220 V secondary	1	-	-

> Motor Control

Optimise swimming pool water management



Customer's needs

The swimming pool manager wants to optimise the operation of the various pool areas:

- the swimming pool water must be filtered continuously on the days the pool is open
- the water supply to the footbaths must only be operational during opening times.

Distributor recommendation

Automated pool management via a dual-output programmable time switch.

The first output controls the pool water filtering pump and the second controls the footbath water supply solenoid valve.

+ Energy Efficiency core products

The solution is to use IHP 2c programmable time switch:

- To program on IHP 2c output 1; the days and times the pool water will be filtered (example: every day from 8 a.m. to 8 p.m.)
- To program on IHP 2c output 2; the days and times the footbaths will be operational (example: filled with water ½ h before the swimming pool opens and emptied ½ hour after it closes)
- Up to 6 years power backup in the event of mains failure.

> Zoom on

IHP 2c

Efficiency at your fingertips!



IHP 2c



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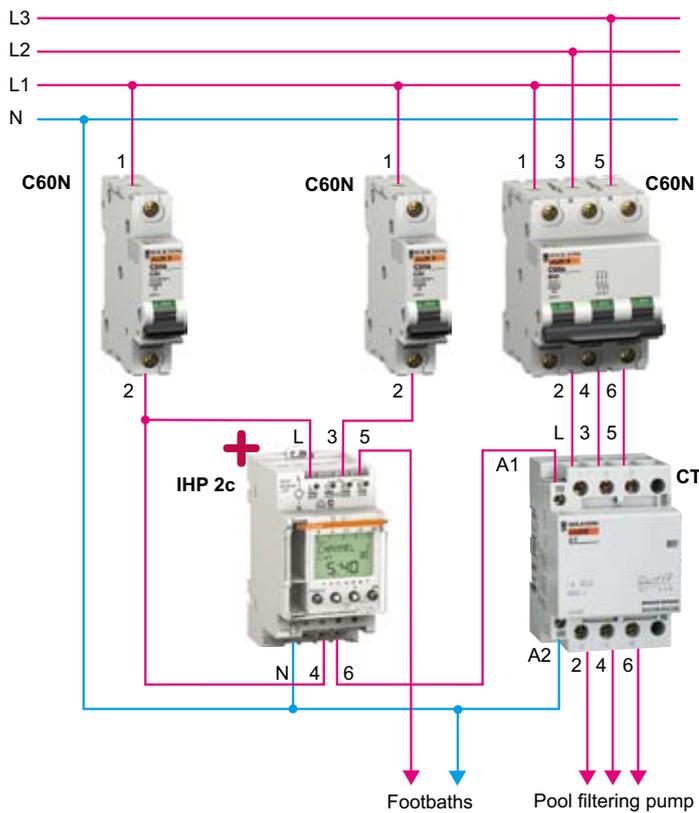
→ A complete list of products is available in Index (Cf. page 138 of this catalogue)



> Energy Efficiency benefits

- > Optimised management of swimming pool operation.
- > Possibility of temporary or continuous override operation (ON or OFF).
- > Automatic summer/winter time change.

Solution diagram



- Circuit-breakers to protect the various devices
- The footbath water-filling solenoid valve is directly controlled by the IHP 2c switch contact
- The characteristics of protection circuit-breakers and CT contactor depend on the installed power and type of load

> Products used

Product	Description	Unit	Reference	Index page
IHP 2c	Programmable time switch	1	CCT15852	p. 139
C60N	MCB 1 pole	1	24170	p. 138
C60N	MCB 1 pole	1	24177	p. 138
C60N	MCB 3 poles	1	24215	p. 138
CT	Modular contactor 3 poles	1	15383	p. 138

> Motor Control

Optimise water pumping



Customer's needs

The site manager of a water pumping station would like to reduce his operating costs and sustain energy gains through reliable and efficient equipment operation. The return on the investment should not exceed 24 to 36 months.

Distributor recommendation

The pump control will be done by a variable speed drive Altivar 61 equipped with its water "pump switching" card.

+ Energy Efficiency core products

- With its multi-pump option, the Altivar 61 provides flexibility for the management of several pumps
- The variable speed pump is speed-controlled from the pump switching card and up to 4 additional external pumps can be controlled by DOL starters or preferably under soft starter control
- As an option on demand the Altivar can be combined to a RTU (Remote Terminal Unit) that will guarantee acquisition and transmission of events and alarms.

> Zoom on

ATV 61

In the heart of your applications!



ATV 61HU55N4



→ Detailed sheet page 114 of this catalogue

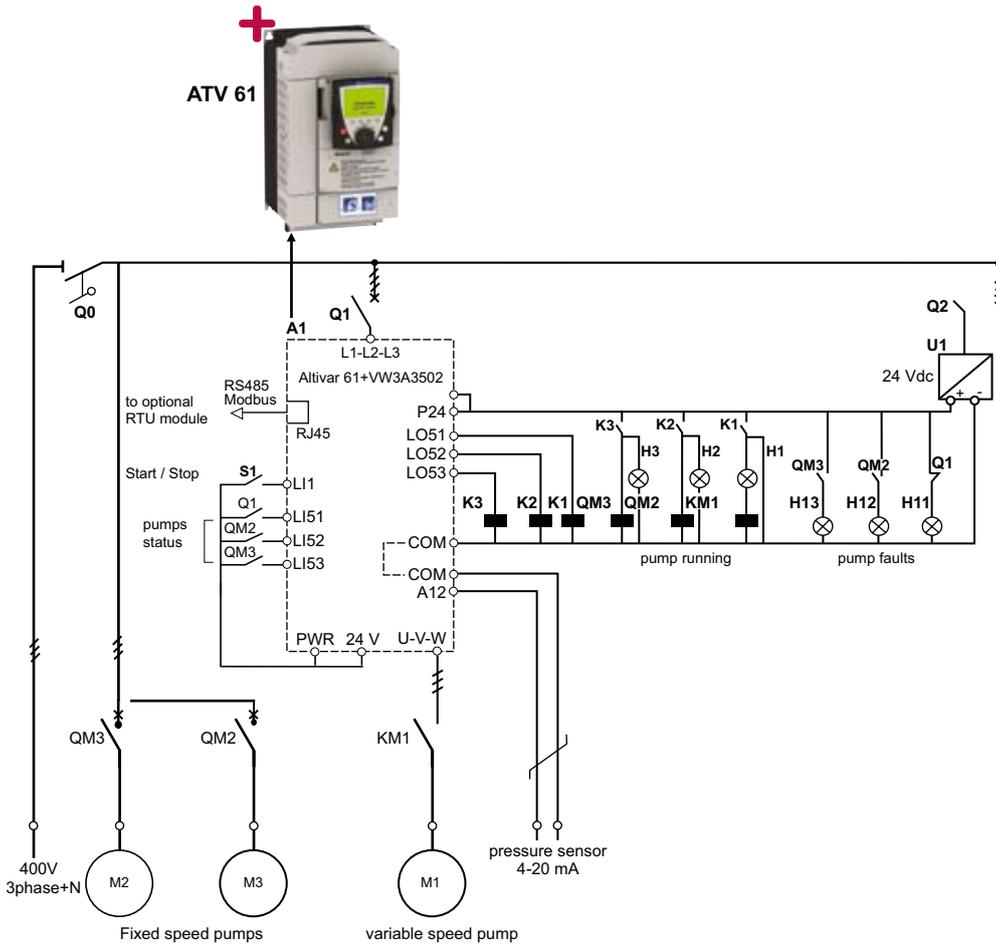
→ A complete list of product is available in Index (Cf. page 138 of this catalogue)



> Energy Efficiency benefits

- > Electrical energy may account for as much as 30% of the operating costs.
- > Controlled by a variable speed drive Altivar 61, motor power at 80% of nominal flux represents only 50% of nominal power in contrast with 95% for traditional control.
- > You can evaluate your cost saving with the software ECO8.

Solution diagram



> Products used

Product	Description	Unit	Reference	Index page
A1	ATV61 drive 5.5 kW 380...480 V 50/60 Hz + pump switching card	1	ATV61HU55N4 + VW3A3502	p. 138
H1-3, H11-13	Pilot lights with DEL 24 VDC	6	XB4BVB	p. 139
K1, K2, K3	Interface relay 24 VDC 4 NO/NC contacts + socket	3	RXM4AB2BD + RXZE2M114M	p. 139
KM1	Contacteur	1	LC1D18BD	p. 139
Q1	Magnetic motor circuit breaker + add-on N0+NC contacts	1	GV2L16 + GVAE11	p. 139
QM2, QM3	Tesys U motor starter - Base 12 A, control unit, add-on contact module and contact block	2	LUB12+LUCA12BL+LUFN11+LUA1C20	p. 139
S1	Key switch - 2 fixed positions	1	XB4BG21	p. 139
U1	Power supply 24 VDC - 3 A	1	ABL8REM24030	p. 138

> Renewable Energy

Harness solar energy for your building



Customer's needs

The facility manager would like to save money while helping the environment. Promoting clean energy is also an opportunity to enhance his "green" image.

Distributor recommendation

Choose SunEzy single-phase inverters. Each inverter (or each group of inverters) will be connected to one phase of the 3-phase grid. A part of the investment cost will be recovered through regional clean energy incentives and by tax credit through specific amortisation allowances.

+ Energy Efficiency core products

- Pre-wired junction boxes to group the DC production of generators
- 3 inverters which convert the electricity produced by the solar modules from direct current (DC) to alternating current (AC)
- Pre-wired DC/AC protections
- Optional data logger for remote monitoring.

> Zoom on

SunEzy

Convert Sunlight!



SunEzy 600E



Protection



SunEzy BJ41



→ Detailed sheet page 131 of this catalogue

→ A complete list of product is available in Index (Cf. page 138 of this catalogue)

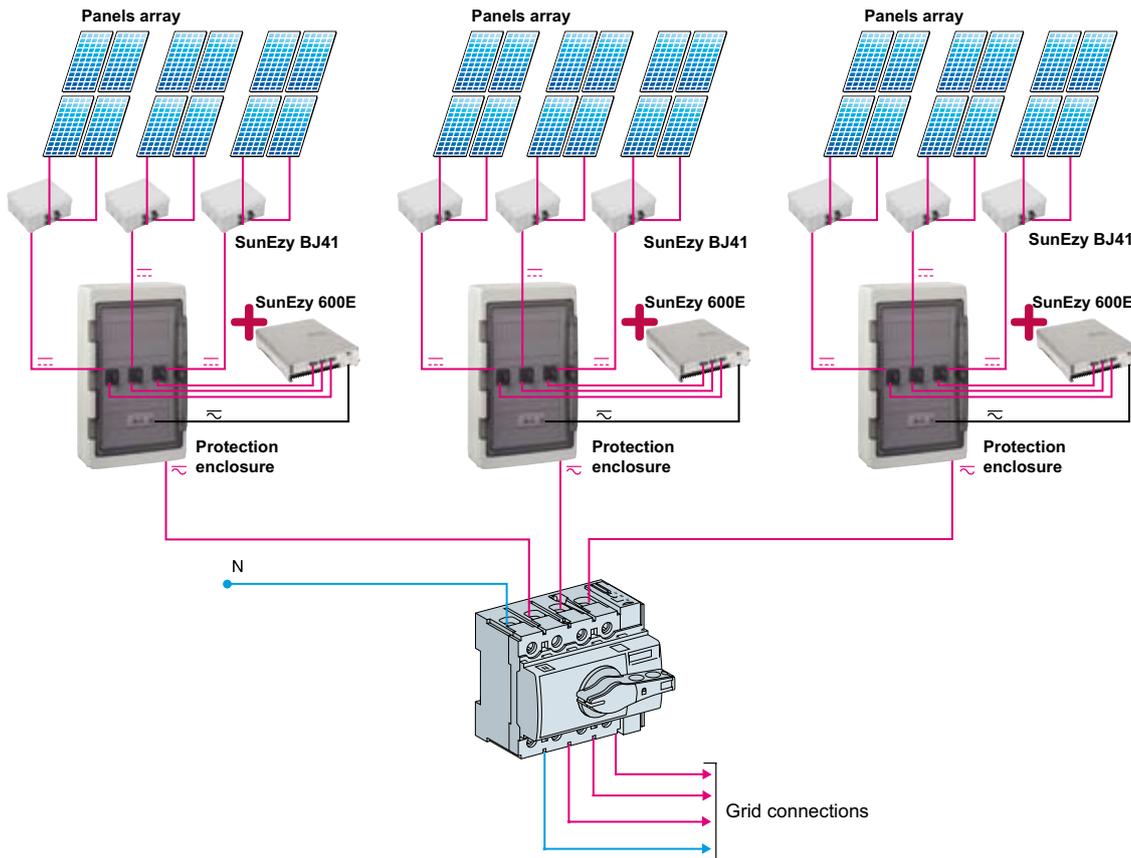


> Energy Efficiency benefits

- > With 0.476 kg/kWh of carbon reduction (average in Europe), a solar solution is bringing clean and renewable energy into your building.
- > Reselling this energy to a utility, at a very attractive and pre-determined rate, will allow you to compensate your electric bills up to 20% (depending on application types) and a quick return on the investment (6-8 years).

Renewable Energy

Solution diagram



- A three-phase installation: 16 kWc, with 138 m² solar modules
- The 3 neutrals conductors are connected together to the grid neutral
- Each inverter is connected to specific phase
- 30.26 tons of CO₂ saved in 20 years
- Return on Investment: 8 years

> Products used

Product	Description	Unit	Reference	Index page
SunEzy 600E	Inverter	3	PVSNV1600E	p. 139
SunEzy BJ41	Junction box	9	PSVBJ41M3	p. 139
Protection	Protection enclosure DC	3	PVSSCP65	p. 139
Protection	Protection enclosure AC	1	On demand	-

> Renewable Energy

Harness solar energy for your home



Customer's needs

The homeowner wishes to save a substantial amount on his home utility bills and help protect the environment.

Distributor recommendation

Choose SunEzy, a solar solution for the interconnection of photovoltaic modules, for DC/AC power conversion and for the protection of DC and AC circuits. Many countries, states or regions are offering incentives to homeowners installing clean energy in their homes (tax credits, financial help, and special kWh rates).

+ Energy Efficiency core products

- Pre-wired junction boxes to group the DC production of the generators
- Inverter which converts electricity produced by the solar modules from direct current (DC) to alternating current (AC)
- Pre-wired DC/AC protections
- Optional data logger for remote monitoring.

> Zoom on

SunEzy

Convert Sunlight!



SunEzy 2000



Protection



SunEzy BJ21



→ Detailed sheet page 131 of this catalogue

→ A complete list of product is available in Index (Cf. page 138 of this catalogue)

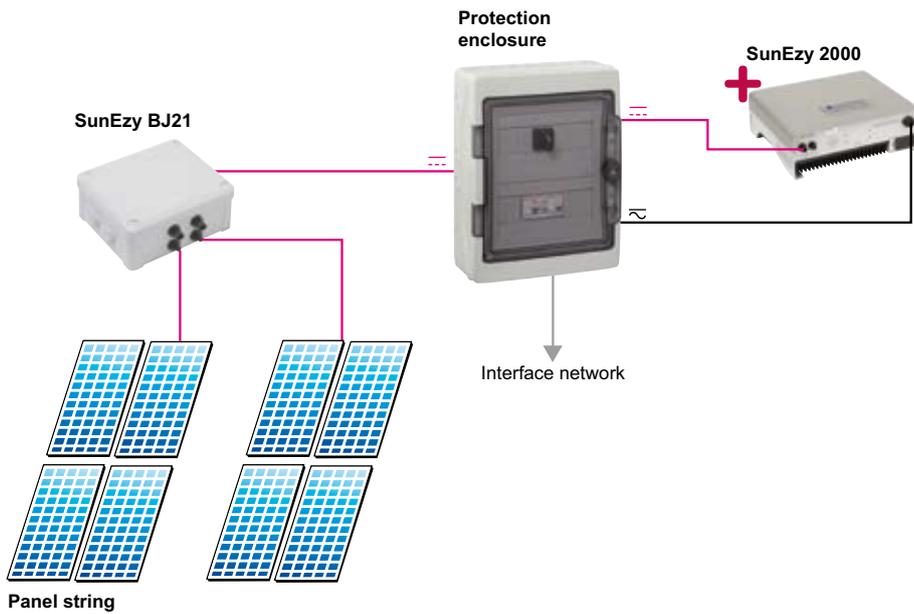


> Energy Efficiency benefits

- > With 0.476 kg/kWh of carbon reduction (average in Europe), a solar residential solution is bringing clean and renewable energy into your home!
- > Reselling this energy to a utility, at a very attractive rate, compensates your electric bills up to 50% and get a quick return on the investment (5 to 6 years).
- > If you decide to sell your property, solar energy adds value to your home and buyers are ready to pay a premium for solar energy equipped houses.

Renewable Energy

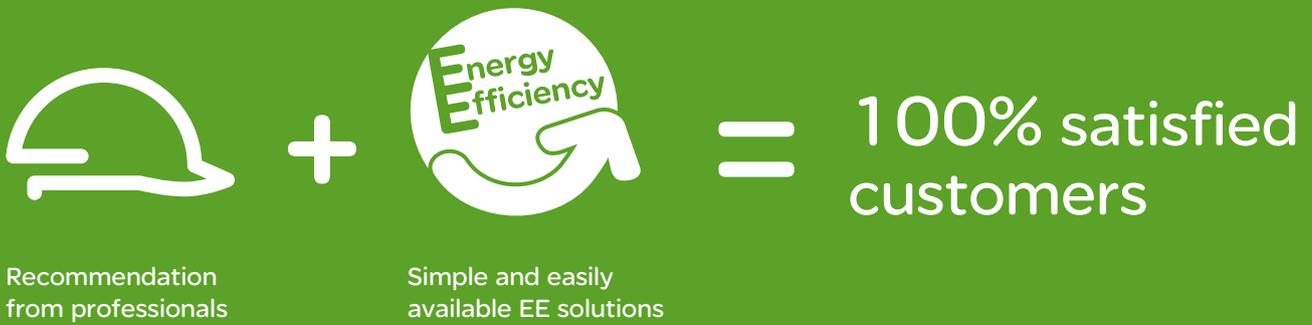
Solution diagram



- A single-phase installation: 2.1 kWc, with 15.9 m² solar modules
- A software "SunEzy design" enables to define the compatibility of configurations between the Inverter and the solar modules: number of chains, number of modules per chain,...

> Products used

Product	Description	Unit	Reference	Index page
SunEzy 2000	Inverter	1	PVSNV12000	p. 139
SunEzy BJ21	Junction box	1	PSVBJ21M3	p. 139
Protection	Protection enclosure	1	PVSSCP40	p. 139



EE Products

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ATV 11

Real efficiency at a reduced size!



ATV11HU41M2E



ATV11PU18M3U



ATV11HU18M2A

Benefits

The Altivar 11 drive combines all the functions that you require for your applications:

- Reduction of electrical energy consumption
- Controlled stop on loss of line supply: freewheel, normal and fast stop
- Enhanced safety: stops the motor when it is underloaded or overloaded,...
- Increased user comfort: automatic restart, fault reset, switching frequency adjustment for noise reduction, catch on the fly,...
- Choice of four preset speeds.

Altivar 11's high performance and compact size will make electromechanical solutions a distant memory. Designed for maximum simplicity with its immediate starting, user-friendly adjustment and quick wiring - it integrates all the necessary features for use anywhere in the world.

Applications

The Altivar 11 includes special features for local markets (Europe range, America range, Asia range) and has functions suitable for the most common applications, including:

- Horizontal material handling: small conveyors,...
- Ventilation, pumping, access controls, automatic doors
- Special machines: mixers, washing machines, juice extractors,...

The Altivar 11 pump range drives are designed to control asynchronous motors used in water pumping applications:

- Fire booster
- Water supply
- Booster stations
- Irrigation
- Industrial water booster,...

Range description

100...120 V / 200...240 V single-phase

200...230 V 3-phase, 50/60 Hz

0.18...2.2 kW, IP20

- Speed regulation by flux vector control
- Speed range from 1 to 20
- Drive and motor protection
- Robustness even in severe environments from -10 to + 50° C
- Through wiring and connection using captive screws: simple replacement of electromechanical solutions
- Compact, side-by-side mounting
- DIN rail mounting possible
- Integrated class B EMC filter or available as an option
- Very low leakage current of drive compatible with 30 mA differential circuit breaker for assured protection of personnel
- Baseplate mounted version available.



Fit in solutions

→ Optimise pumping for swimming pool

p. 100

ATV 21

A new breath for your applications!



ATV21HU75N4



ATV21H075M3X



ATV21WU22N4

✓ Benefits

The Altivar 21 drive considerably improves building management by:

- Providing a significant energy saving
- Simplifying circuits by removing valves and flow control gates
- Reducing noise pollution
- Offering flexibility and ease of adjustment for installations
- Opening to the building communication networks
- Its compact size with an economical design to specially answer to your needs.

✓ Applications

The Altivar 21 drive has been designed for state-of-the-art applications in heating, ventilation and air conditioning (HVAC) in tertiary buildings:

- Ventilation
- Air conditioning
- Pumping.

All essential functions for variable torque applications, pumps and fans:

- PI regulator, preset PI
- Automatic restart, recovery with the flight
- Skip frequencies
- Belt breakage detection
- Overload detection and underload detection.

✓ Range description

3-phase 200/240 V - 380/480 V

- UL Type 1/IP20 and IP54 up to 75 kW
- Speed range: 1:50
- Overload: 110 % - 60 s
- Integrated EMC filters class A or B
- Main communication bus used on the building market: LonWorks, Metasys N2, BACnet, and APOGEE FLN
- Conformity to international standards and certifications: CE, UL, CSA, C-Tick,...
- "Capacitor less" technology: immediately operational and without harmful effect, harmonics treatment without added artifices: THDI < 30 %
- Self-adaptation of ramps and motor control supply to optimise energy consumption
- Its remote terminal increases its user friendliness: settings of the functions, configurations and parameters downloading and saving
- Compact, side-by-side mounting
- Motor and drive protection
- Economical design.



Fit in solutions

→ Ensure effective operation of a cooling tower fan

p. 46

ATV 61

In the heart of your applications!



ATV61HU75N4



ATV61WD15N4



ATV61HC31N4



ATV 61EXC2D90N4

✓ Benefits

- The Altivar 61 drive can reduce operating costs in buildings by optimising energy consumption while improving user comfort
- Its numerous integrated options enable it to be adapted and incorporated into electrical installations, sophisticated control systems and building management systems
- Open to main building and industry communication networks
- Smart, the Altivar 61 can be customised according to your needs.

✓ Applications

Range dedicated to pump and fan applications for industry and building markets: exceptional performance, advanced functional features.

High performance variable torque applications:

- Fan: safety with override function (inhibition of faults, selection of direction and reference speed)
- Multipump: with the programmable multi-pump card, Altivar 61 brings you flexibility, user-friendliness and adaptability in the management of several pumps
- Pumps: essential functions for your installation, underload and overload protection, and fluid absence detection.

✓ Range description

3-phase 200/240 V - 380/480 V - 500/690 V

- IP20 from 0.75 to 800 kW
- IP54 from 0.75 to 800 kW
- Speed range: 1:100 in open loop mode, without speed feedback
- Overload: 130% - 60 s
- Graphic keypad: plain text, navigation button, "Simply Start" menu to start immediately. More than twenty languages available
- Integrated EMC filters class A or B
- Energy saving law, Quadratic motor control law
- Conformity to international Standards and Certifications: CE, UL, CSA, C-Tick, NOM 117 and GOST
- Modbus and CANopen integrated
- Communication cards for industry: Modbus TCP, Ethernet/IP, Fipio, Modbus Plus, DeviceNet, Interbus, CC-Link, Modbus/Uni-Telway, PROFIBUS DP and for building LonWorks, BACnet, METASYS N2 and APOGEE FLN
- Inputs/outputs extension cards
- Multi-pump programmable cards: can control a complete pumping installation (up to five pumps)
- Controller Inside programmable card
- PowerSuite software: to configure, set and save parameters from your applications
- Eco-design
- More than 150 functions available
- Protection of motor and drive
- Safety function: "Power Removal", ATEX.



Fit in solutions

- Reduce electricity costs and noise in an industrial fan
- Optimise water pumping

p. 54
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CDM ARGUS

With movement comes light!



CDM 180



CDM 360



CDM 270

Benefits

CDM Argus movement detection control switches satisfy most automatic lighting needs. These products are robust, reliable and can be used both inside and outside buildings.

Use of movement detection control switches allows:

- Reduction of electrical energy consumption: the installation operates only when necessary
- Increased user comfort: automatic triggering, customisation of operating parameters: time delay
- Brightness threshold and detection perimeter
- Enhanced safety: lighting of dark areas, prevention of vandalism, putting uninvited guests into spotlight.

Applications

CDM Argus movement detection control switches are used to automatically trigger lighting according to the level of brightness and in the presence of a person or of any other motion (a vehicle passing by). These switches can also control installations other than lighting: fans, shop doors, heating systems,...

Unlike the presence detectors installed in areas where people are present (offices, classrooms, museums), movement detection control switches react to a larger amplitude of movements and must thus be installed in places of passage (lobbies, car parks).

- Application examples:
 - Lighting of corridors, entrances, office halls, staircases, warehouses
 - Luminous animation of shop windows
 - Lighting of garages, gardens, underground car parks.

Range description

The CDM range consists of the following infrared control switches:

- CDM Argus 180: 16974
- ARGUS 110° Basic: MTN565119
- ARGUS 220° Basic: MTN565219
- ARGUS 300: MTN564319
- ARGUS 360: MTN564419

Offer positioning:

- Segments: all building markets - residential, tertiary, public and industrial buildings
- Access channels: contractors via distribution
- Offer: a complete range of movement detectors, enabling all needs to be satisfied.

Technical data

- CDM 180: 0...180°
- CDM 270: 0...270°
- CDM 360: 0...360°
- Maximum range: 12 m
- Power supply: 230 VAC (50/60 Hz)
- Consumption: < 0.8 W
- Degree of protection: IP 54
- Output: dry contact
- Time delay (after end of detection): 10 s to 15 min.
- Setting of brightness threshold: 2...2000 lux



Fit in solutions

- Automate lighting for hotel foyer cloakrooms p. 58
- Automate lighting of a building hall p. 60
- Automate lighting of access to your home p. 62
- Optimise lighting of technical premises in a hotel p. 94

CDP ARGUS

Keeping energy costs down!



CDP ARGUS

✓ Benefits

CDP ARGUS presence detector satisfies automatic lighting needs in places where people are present: living rooms, offices, classrooms, long corridors, entrance hall,...

Use of presence detector allows:

- Reduction of heating and power costs and bring an end to unnecessary energy consumption
- Optimised energy use: increased energy costs and growing awareness of the environment in modern building management mean that more innovative solutions for efficient energy use are required now than ever before.
- Increased user comfort (automatic triggering, operating parameter customisation: time delay, brightness threshold and detection perimeter).

✓ Applications

- Individual and large offices: presence detectors switching individually or in a group provide complete lighting control depending on movement and brightness. Maximum energy savings can be achieved by including the heating too (example by using a night time economy mode when no movement is detected)
- Classrooms: thanks to the lighting control, which is dependent on movement and brightness, only classrooms which are actually in use will be lit and heated. Maximum energy savings potential can be achieved by including heating in the system
- Corridors: during the day, ARGUS presence detectors provide sufficient lighting, while increasing security by acting as movement detectors at night. If they detect a movement, the security guard, for example, will receive a signal.

✓ Range description

The ARGUS presence detector range comprises:

- ARGUS presence detector: MTN550590 polar white
- ARGUS presence detector with IR receiver: MTN5560951 polar white
- ARGUS presence system: MTN550499 polar white
- ARGUS presence system sensor: MTN550419 polar white

Technical data

ARGUS presence detector MTN550590 and MTN5560951:

- Two relay outputs
- Angle: 360°
- Incandescent lamps max: 1000 W
- Halogen lamps max: 1000 W
- Number of levels: 6
- Number of zones: 136 with 544 switching segments.

ARGUS presence system MTN550499 and MTN550419:

- Two relay outputs
- Angle: 360°
- Incandescent lamps max: 2300 W
- Halogen lamps max: 2000 W
- Number of levels: 5
- Number of zones: 71 with 284 switching segments.

Accessory

- Surface mounted housing for ARGUS presence detector
- MTN550619 polar white.



Fit in solutions

- Control lighting in classrooms p. 68
- Manage lighting by detection of presence in office block p. 80

CDS

Prevent over-consumption!



CDS

✓ Benefits

Use of CDS products makes it possible to:

- Reduce the electricity bill: load shedding reduces the power subscribed when the subscription was taken out
- Increase the number of loads that can be managed, without increasing subscribed demand
- Enhance continuity of supply: as soon as the power consumed by the installation approaches the power set on the product, CDS units shed non-priority loads, in cascade.

CDS products avoid breaking of the central circuit-breaker when power consumption exceeds the power subscribed by the consumer.

To this end, they temporarily break supply to circuits considered to be non-priority circuits as soon as the total current drawn exceeds a pre-set threshold.

They also enable reduction of the electricity bill by authorising reduction of subscribed demand.

These products, installed in the electrical switchboard, are designed to be implemented by an electrical contractor.

✓ Applications

CDS products are especially designed to manage load shedding of electrical loads in residential and tertiary installations up to 36 kVa.

✓ Range description

The CDS range is made up of the following catalogue numbers:

- CDS: 15908 - Single-phase load shedding of 2 circuits in cascade mode
- CDSc: 15906 - Single-phase load shedding of 4 circuits in cascade-cyclic mode
- CDS 3ph: 15913 - Three-phase load shedding (one circuit on each of the 3 phases)

Technical data

- Ratings: priority channel adjustable from 5 to 90 A, non priority channels 15 A
- Voltage rating: single phase 240 V A +5% - 10%, three-phase 415 V CA +5% - 10%
- Frequency: 50 to 60 Hz
- Indication of load shedding by yellow light-emitting diode (LED)
- Restoration period: 5 to 10 minutes
- Load shedding override input
- 1 A rating normally open contact allowing remote indication of load shedding, or direct load shedding via a normally closed CT contactor.



Fit in
solutions

→ Manage load shedding of your home electrical installation

p. 48

Compact NSX

Compact NSX brings energy to life!



NSX 100F



NSX 250N



NSX 400N

✓ Benefits

The new Compact NSX range allows:

- Increased energy availability
 - Optimised energy consumption and simplified operation of electrical installations.
- Integration of measurement functions and availability of data enable the Compact NSX range to go beyond simple protection to become a true management tool serving electrical efficiency.

✓ Applications

Protection of low voltage electrical installations in all tertiary and industrial buildings, and in particular:

- Low short-circuit current level application – small and medium tertiary
- Standard applications: industrial installations, buildings, hospitals
- Applications demanding high performance at controlled cost: process, metallurgy
- Applications requiring measurement and diagnostic functions via communication, via supervision network.

Specific applications:

- Protection of installations in disturbed environments,
- Applications in 400 Hz and 16 2/3 Hz (air bases, drives)
- Motor protection

✓ Range description

Moulded case circuit-breakers 100 to 630 A.

The new range of Compact NSX circuit breakers incorporates Micrologic electronic trip units offering both highly reliable protection and accurate power monitoring functions. For the lowest ratings (40 A), they offer analysis, measurement and communication features.

The front of Compact NSX circuit breakers has an attractive curved profile. Measurements are easy to read on a white panel that stands out on the charcoal grey case. The user has direct access to parameters and settings. Screen navigation is intuitive and settings are simplified by immediate readings in Amps. In addition, a "Ready" LED flashes to show that everything is working fine.

Compact NSX breaks up into five ranges:

- NSX 100
- NSX 160
- NSX 250
- NSX 400
- NSX 630.

Technical data

- Rated current: 16 to 630 A
- 6 breaking levels from 25 to 150 kA at 415 V
- Operating voltage: up to 690 V
- 2 physical sizes from 16 to 630 A
- 2, 3 and 4 pole versions
- Positive break indication
- Extensive electronic and thermal magnetic protection range
- Main electrical parameter measurement functions: I, U, P, E, THD, cos θ , f
- Differential protection by associated Vigi module
- "Plug & Play" wiring system and communicating accessories
- Wide range of common auxiliaries and accessories interchangeable on site
- Compliance with international standards: IEC 60947-1, 2, NEMA, IEC 68320
- Compliance with marine classification organisations: Bureau Veritas, Lloyd's Register of shipping, Det Norske Veritas, RINA, ...



Fit in solutions

- Optimise electrical consumption of different workshops
- Optimise electrical consumption of refrigeration equipment

p.34

p.36

EN40/EN'clic

Monitor your energy consumption!



EN40P



EN'clic

✓ Benefits

The EN40/EN clic kilo-Watt-hour meters allow you:

- To monitor power consumption and establish your customers' invoices
- To control your power consumption.

This range is specially economical and easy to install in all switchboards < 10 kVA, such as Kaedra, Pragma, Prisma,...

✓ Applications

- For business, industrial and residential applications
- To monitor the power consumption in different sectors, units, workshops, ...
- To manage an electrical installation and optimise your building's power efficiency.

✓ Range description

EN40/EN'clic kilo-Watt-hour meters are designed for metering active energy consumed by a single-phase electric circuit.

EN40/EN'clic kilo-Watt-hour meters range is compliant with standard IEC 61557-12, IEC 62053-21(class 1), EN50470-3 and MID (pending approval).

Its small size allows it to be installed in compact switchboards such as Kaedra, Opale, Pragma...

EN40 / EN'clic kilo-Watt-hour meters provide direct measurement up to 63 A without CT's, an auxiliary power supply for even greater savings in terms of wiring.

The bottom/bottom connection of current inputs facilitates the meter's connection with the associated circuit breaker. A pulse output can be used to manage a set of meters remotely.

There are three ranges:

- EN'clic: 40 A DuoLine single-phase kilo-Watt hour meters
- EN40: 40 A single-phase kilo-Watt-hour meter
- EN40P: 40 A single-phase kilo-Watt-hour meter with remote transfer of metering impulses (static output).

Technical data

- Accuracy class:
 - Class 1 conforming to IEC 62053-21 and IEC 61557-12 (PMD DD): I_{max}: 40 A, I_b: 5 A, I_{st}: 0.02 A
 - Class B conforming to EN 50470-3: I_{max}: 40 A, I_{ref}: 5 A, I_{min}: 0.25 A, I_{st}: 0.02 A.
- MID conformity pending.
- Terminals / Tightening torque:
 - Power: 10 mm²/1.2 ±0.2 N.m
 - Remote transfer: 4 mm²/0.8 ±0.1 N.m.
- Meter:
 - Capacity: 999999.9 kWh
 - Display in kWh, 6+1 digits.
 - Meter indicator: 3200 flashes / kWh
 - U: 230 V ±20 %, 45-65 Hz
 - I_{max}: 40 A
 - Operating temperature:
 - I ≤ 32 A: -25°C to +65°C
 - I > 32 A: -25°C to +55°C (K55).
 - IP40 front panel, IP20 casing
 - Overvoltage and measurement category III, degree of pollution 2
 - Consumption: < 10 VA
 - Solid state output for remote transfer (EN40P):
 - 100 impulses per kWh
 - 35 V, 20 mA (max)
 - Impulse of 120 ms.



Fit in solutions

→ Identify over-consumption sources in your home

p. 26

→ Measure electrical consumption in a campsite

p. 28

IC

With darkness comes light!



IC100



IC2000



IC Astro

Benefits

IC light sensitive switches automatically control lighting, roller blinds,... according to light intensity and/or the time of the day. They allow:

- Reduction of electrical energy consumption (lighting operates only when necessary)
- Increased user comfort (lighting is on automatically when brightness is no longer sufficient)
- Enhanced safety (by lighting up dark areas, protection is provided against vandalism).

Applications

More particularly designed for building and infrastructure markets, they can be used to control:

- Public lighting and lighting of monuments
- Lighting of car parks
- Lighting of illuminated signs and shop windows
- Lighting of industrial type premises.

Range description

The IC range is made up of the following catalogue numbers:

- IC100: 15482, supplied with wall-mounted cell, IP54
- IC200: 15284, supplied with panel board door cell, IP65
- IC2000: CCT15368, supplied with wall-mounted cell, IP54
- IC2000P+: 15483, supplied with wall-mounted cell, IP54
- IC Astro: 15223 and 15224, according to languages memorised

● Photoelectric cells:

- 15281 (IP65, panel board door cell)
- 15268 (IP54, wall-mounted cell)
- New CCT15268 cell for IC2000 (IP54 wall-mounted cell).

All IC, except IC Astro, measure light intensity using resistive photo cells that can be installed on a door ("spy hole" cell) or outside a building (IP54 wall-mounted cell):

- IC Astro light sensitive switch operates without a cell, according to sunrise and sunset time as per geographic position
- IC100 is an 18 mm module, easy to use when renovating
- IC2000P+ is simple to use, as it has intuitive programming
- IC2000 is getting smaller as its width changes from 54 to 45 mm.

Brightness threshold

- IC100: 2 to 100 lux
- IC200: 2 to 200 lux
- IC2000: 2 to 2000 lux
- IC2000P+: 2 to 2100 lux, in three steps:
 - 2 to 50 lux
 - 60 to 300 lux
 - 350 to 2100 lux.

Time delay

- IC100: delay to close the relay 20 s, delay to open the relay 80 s
- IC200: greater than or equal to 40 s
- IC2000: 60 s
- IC2000P+: adjustable delay, 20 to 140 s.

Technical data

- Type of output: changeover contact for all products except IC100 (normally open)
- Load capacity: IC200 = 10 A, IC100, IC2000, IC2000P+ = 16 A
- Connection type: IC100, IC2000, IC2000P+, IC Astro: 1 screw connection per pole up to 6 mm²
- IC2000: 2 screwless connection per pole up to 2.5 mm²
- Built-in weekly clock (IC2000P+ and IC Astro)
- Manual control (IC2000P+ and IC Astro)
- Remote control via external input (IC2000P+ and IC Astro)
- "Cabling test" function with a pushbutton on front face (IC2000).



Fit in solutions

- Automate public lighting according to sunrise and sunset p. 64
- Automate lighting of surroundings of a building p. 66
- Optimise hotel car park lighting p. 92
- Optimise shop-window lighting p. 98

IHP

Efficiency at your fingertips!



IHP+1c



IHP 2c



IHP DC F 1c

Benefits

- Reduction of electrical energy consumption (the installation operates only when necessary, operation during the most favourable rate periods)
- Increased user comfort (customisation of operating periods, triggering accuracy), enhanced user safety by using the random operating mode proposed by the "+" versions to simulate presence
- Uses of programmable time switches:
 - Programmable time switches are used to program automatic operation of heating, lighting, ventilation,... in an accurate manner
 - With 4 keys, a large screen and text-guided intuitive programming, these switches are easy to program and use
 - With the external input, these switches can be controlled with a switch or pushbutton away from the electrical distribution panel board
 - With the memory key, saving and duplication of programs can be done easily
 - With the programming kit, more complex programs can be created with a PC and downloaded to the products
 - With the electrical distribution comb busbar mechanical compatibility and screw-less connection, the installation becomes simpler, faster and more reliable.

Applications

- IHP programmable time switches control opening and closing of independent circuits according to a program set by the user by memorisation of ON and OFF switching operations
- These switches are adapted to all application types (bell, lighting, heating, ventilation, access control,...) irrespective of the sector of activity (residential, tertiary, public building, agriculture, industry,...)
- To satisfy specific needs for a high degree of accuracy, the DCF programmable time switch is synchronised on the DCF 77 signal of the Frankfurt transmitter.

Range description

The IHP range consists of the following catalogue numbers:

- Intuitive devices (24 h and/or 7 d):
 - IHP 1c: 15720 & 15850 change to CCT15400, CCT15420, CCT15450, CCT15720, CCT15850 as per language
 - IHP+1c: 15721 & 15851 change to CCT15401, CCT15421, CCT15451, CCT15721, CCT15851 as per language
 - IHP 2c: 15722 & 15852 change to CCT15402, CCT15422, CCT15452, CCT15722, CCT15852 as per language
 - IHP+2c: 15723 & 15853 change to CCT15403, CCT15423, CCT15453, CCT15723, CCT15853 as per language
 - IHP DCF 1c: 15857 (ANT DCF: 15858)
 - IHP 1c (UL): 15830
 - IHP 2c (UL): 15831.
- Intuitive devices (24 h and/or 7 d): compact-18 mm
 - IHP 1c 18 mm: 15854 - 15724 as per language
 - IHP+1c 18 mm: 15837 - 15725 as per language.

Technical data

- Supply voltage: 230 V AC (IHP UL: 120 V AC)
- Program: 24 h, 7 d or annual
- Summer/winter time changeover: automatic
- Operating reserve.

IHP 1c/2c main characteristics

- Number of switching operation: 56

IHP+1c/+2c main characteristics

- Number of switching operation: 84
- Back-lit dial, random function & pulse programming
- Supplementary inputs for external control: 1 input (IHP+1c) or 2 inputs (IHP+2c)

IHP+1c/+2c accessories

- PC kit: CCT15860, with programming device, memory key, CDRom and 2 m USB cable
- Memory key: CCT15861, for saving and duplicating.



Fit in solutions

- Manage water heating in public buildings p. 52
- Control office lighting locally p. 70
- Monitor lighting time and manage the bells in a school p. 90
- Optimise swimming pool water management p. 102

IKEOS

Program, time delay, count. IKEOS: let yourself be guided!



IKEOS

✓ Benefits

The ITM multifunctional switch is designed to perform automation functions in buildings, enhance energy savings, comfort, safety,...

This compact product is easy to implement and use, thanks to a simple and intuitive programming interface (scroll-down menus). It incorporates 9 time management, lighting control and counting functions as standard. Its memory cartridge facilitates duplication and saving of the programs produced, to include them, for example, in another ITM.

✓ Applications

The ITM multifunctional time switch is used to control several utilities separately (up to 4 channels) according to the status of conditional inputs (switches, pushbuttons, detectors,...) and the program produced by the user.

Examples:

- in a sports shop, lighting management of shop window, storeroom, selling area and illuminated sign
- in a multipurpose room, lighting management of the main room and storage area, management of mechanical ventilation of toilets, management of building heating
- in a house, lighting management of the cellar and outside areas, management of automatic sprinklers.

✓ Range description

- ITM reference: 15270
- Memory cartridge reference: 15280.

Technical data

- Weekly or annual programming
- 6 conditional inputs of the digital type to:
 - Control the closing delay, tripping delay and timer functions
 - Condition weekly and annual time programming as well as blinker functions
 - Count the hours or impulses for the hour counter and impulse counter functions
 - Override operation of an output channel for weekly and annual time programming functions
 - Reset the hour counter and impulse counter functions.
- 9 functions included: choice for each channel: weekly time programming, annual time programming, impulse programming, closing delay, tripping delay, timer, blinker, hour counter, impulse counter
- Output type: dry contacts.



Fit in solutions

→ Manage lighting in various parts of a shop p. 88

KNX

Bus system components!



IP Touch Panel lounge



Wind sensor



Multi-function push-button, 4-gang



ARGUS presence

✓ Benefits

With KNX many separate commands such as heating, blinds, lighting, heating and air-conditioning,... are connected and form an intelligent system.

KNX bus system unites under one roof functions which were previously controlled separately. Just press a single button to activate all the desired functions in one go: blinds are lowered, lighting is switched on and the room is heated to just the right temperature.

Cost efficiency and flexibility are particularly important for private and commercial buildings. This is where intelligent building management with KNX really comes into its own:

- Cost efficiency is drastically improved thanks to the optimum combination of different control levels: presence, brightness, time-dependency for lighting; presence, temperature settings, blind-control for heating and air conditioning
- Flexibility is really improved compared to a traditional installation, adaptation of the building functions layout is very easy when rooms are used for different purposes, example after re-organisation or a move.

✓ Applications

KNX solutions from Schneider Electric are addressed to the top-of-the-range residences and tertiary sectors:

- Offices
- Residentials
- Hotels
- Schools
- Hospitals,...

✓ Range description

KNX solutions from Schneider Electric propose only one system with an international standard and many functions which cover various technical branches with a maximum of flexibility.

The parameters of all the functions can be and extended constantly without damaging the buildings. All devices are connected to a common bus line.

This line will be installed in parallel with the 230 V circuit. When a sensor is activated, the actuator carries out the desired orders and reacts to the parametrised configuration.

KNX is composed of different product-types including numerous devices meeting the different demands of an intelligent building:

- System components
- Interfaces/gateways
- Pushbuttons
- Binary inputs
- Sensors
- Time switch
- Switch actuators
- Blind actuators
- Dimming actuators/control units
- Other actuators
- Panel control devices
- Devices for individual room temperature control
- Fan coil controller
- Power supplies,...



Fit in solutions

→ Automate lighting, temperature and shutter control in office buildings

p. 42

→ Combine lighting, temperature and shutter control in office buildings

p. 44

ME

Make sure you don't miss anything!



ME3zr



ME4z



ME1zr

Benefits

- Active energy measurement
- Sub-billing and cost allocation
- A complete range of power metering devices for:
 - All types of networks: single-phase, three-phase, three-phase + neutral
 - All types of measurements: A, V, Hz, kWh
 - Digital or analog display.
- Compact dimensions:
 - 4 modules of 9 mm: 1P+N (ME1)
 - 8 modules of 9 mm: 3P and 3P+N (ME3/ME4).
- Direct measurement (without CT) up to 63 A (ME1/ME1z/ME1zr/ME3/ME3zr/ME4/ME4zr); measurement by CT, with ratio configurable from 40/5 to 6000/5 A (ME4zrt).

Applications

- These products allow analysing and monitoring of consumption of an electrical installation.

Range description

PowerLogic ME watt hour meters are designed for measurement of watt hours consumed by an electrical circuit, single-phase or three-phase, with or without a distributed neutral

- Single-phase watt hour meters with 63 A direct measurement:
 - ME1 = meter with local display
 - ME1z = ME1 + resettable counter
 - ME1zr = ME1z + pulsing contact.
- Three-phase watt hour meters without neutral, with 63 A direct measurement:
 - ME3 = meter with local display
 - ME3zr = ME3 + resettable counter + pulsing contact.
- Three-phase watt hour meters with neutral, with 63 A direct measurement:
 - ME4 = meter with local display
 - ME4zr = ME4 + resettable counter + pulsing contact.
- Three-phase watt hour meters with or without neutral, measurement via CTs secondary 5 A:
 - ME4zrt with measurement via CT (adjustable) + resettable counter + pulsing contact.

Technical data

- Class 2
- Direct measurement up to 63 A or measurement via CTs
- Digital display
- Partial meter
- Easy wiring (without CTs)
- Small size
- Compliance with IEC 61036 standard.



Fit in solutions

→ Monitor and analyse electrical consumption of a shopping centre

p. 30

MIN

Just enough light!



MIN



MINs



MINp



PRE

✓ Benefits

- These products limit lighting operation to the period strictly necessary, providing both savings and comfort. They are easy to use by pressing on the control pushbutton
- They are simple to implement (mechanical compatibility with electrical distribution comb busbar). Allowing connection of several control pushbuttons, they are ideal for controlling lighting of stairways.

✓ Applications

- MIN, MINs, MINp, MINt timers are used to control lighting, ventilation,... in a set time
- MINp and MINt timers can signal the end of time delay by flickering of the lamplight
- This signalling function is also available by association of MIN or MINs with PRE
- Application examples: lighting of hallways to buildings, garages, toilet ventilation,...

✓ Range description

Timers range is made up of the following catalogue numbers:

- MIN: 15363
- MINs: CCT15232
- MINp: CCT15233
- MINt: CCT15234
- PRE switch-off warning: 15376.

Technical data

- MIN: time delay adjustable from 1 to 7 min
- MINs: time delay adjustable from 0.5 to 20 min., silent operation
- MINp: time delay adjustable from 0.5 to 20 min., silent operation with switch-off warning
- MINt: time delay adjustable from 0.5 to 20 min., silent operation with switch-off warning and impulse relay function
- PRE: switch-off warning, only to be used in association with MIN and MINs.



Fit in solutions

- Ensure effective lighting of the entrance of a block of flats
- Manage lighting in a garage
- Manage lighting in a hotel corridor

p. 74
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PM9

Make sure you don't miss anything!



PM9

✓ Benefits

PowerLogic System helps you reduce power consumption and the cost of the energy you use through sub-billing and electrical contract optimisation.

The PowerLogic PowerMeter PM9 helps you:

- In reducing energy costs
 - In improving power quality
 - In improving continuity of service
- for optimal management of your electrical installation and a better productivity.

The PowerLogic is a complete solution:

- Covering all electrical installation management needs, from simple current metering right through to remote monitoring of power quality
- Backed by the most complete range of metering/monitoring devices and power-monitoring software in the market
- Suited to the widest variety of applications in both industrial and service sectors.

✓ Applications

- Panel instrumentation
- Sub-billing/cost allocation
- Remote monitoring of an electrical installation.

✓ Range description

The PowerLogic power meter Series PM9 offers all the measurement capabilities required to monitor an electrical installation in a 4-module case (18 mm modules).

They can be used to monitor 2-, 3- and 4-wire low-voltage systems and connect to external current transformers.

With the large backlit display, you can monitor all three-phases at the same time.

Three versions are available in one supply voltage (220 to 240 V CA):

- PM9 for basic measurements
- PM9P for basic measurements with pulse output
- PM9C for basic measurements with Modbus RS 485 output.

Technical data

- Voltage measurement: 450 V AC direct or external VT (up to 1 kV)
- Only 72 mm wide (four 18 mm modules)
- Output (PM9P): 1
- Communication ports: 1
- Large backlit display
- Demand power
- IEC 62053-21 Class 1 for energy.



Fit in solutions

→ Monitor and analyse electrical consumption of different workshops

p. 32

PM700

Make sure you don't miss anything!



PM700



PM750

✓ Benefits

PowerLogic System helps you reduce power consumption and cost of the energy you use through sub-billing and electrical contract optimisation.

The PowerLogic PowerMeter PM700 helps you:

- In reducing energy costs
- In improving power quality
- In improving continuity of service

for optimal management of your electrical installation and a better productivity.

The PowerLogic is a complete solution:

- Covering all electrical installation management needs, from simple current metering to remote monitoring of power quality
- Backed by the most complete range of metering/monitoring devices and power-monitoring software in the market
- Suited to the widest variety of applications in both industrial and service sectors.

✓ Applications

- Panel instrumentation
- Sub-billing and cost allocation
- Remote monitoring of an electrical installation
- Harmonic monitoring (THD).

✓ Range description

The PowerLogic power meter Series 700 offers all the measurement capabilities required to monitor an electrical installation in a single 96 x 96 mm unit extending only 50 mm behind the mounting surface. With its large display, you can monitor all three phases and neutral at the same time. The anti-glare display features large 11 mm high characters and powerful backlighting for easy reading even in extreme lighting conditions and viewing angles.

The PowerMeter Series 700 is available in four versions:

- PM700, basic version with THD and min/max readings
- PM700P, basic version plus two pulse outputs for energy metering
- PM710, basic version plus an RS 485 port for Modbus communication
- PM750 = PM710 plus two digital inputs, one digital output, alarms and signed power factor.

Technical data

- Voltage measurement: 480 V AC direct or external VT
- Requires only 50 mm behind mounting surface
- Inputs/Outputs: 2 pulse outputs (PM700P), 2 digital inputs and 1 digital output PM750
- Communication ports: 1 (PM710 and PM750)
- Large back lit display with integrated bar charts
- Intuitive use
- Power and current demand, THD and min/max reading in basic version
- Energy class 1 as defined by IEC 62053-21 (PM700, 700P and 710) and class 0.5 as defined by IEC 62053-22 (PM750).



Fit in solutions

→ Monitor and analyse electrical consumption of different workshops

p. 32

PM800

Make sure you don't miss anything!



PM800

✓ Benefits

The PowerLogic Series 800 Power Meter is designed to:

- Reduce energy costs by helping you understand where and how energy is being used
- Extend equipment life and avoid unnecessary purchases by helping to understand circuit loading and identify spare capacity
- Improve power system reliability and reduce downtime by helping you monitor, troubleshoot, and prevent power quality issues (PM870 includes sag and swell detection and configurable waveform capture)
- Measure and manage non-electric utilities using up to five different channels for optimal management of your electrical installation and a better productivity.

✓ Applications

- Panel instrumentation
- Sub-billing, cost allocation, and utility bill verification
- Remote monitoring of an electrical installation
- Mid-range power quality and energy management analysis
- Utility contract optimisation and load preservation.

✓ Range description

The PowerLogic Series 800 Power Meters offer high-performance measurement capabilities needed to monitor an electrical installation in a compact 96 x 96 mm unit. The power meter's large easy-to-read display lets you view all three-phases and neutral at the same time.

Standard features of the PM800 series power meters include an RS485 Modbus communication port (ASCII and RTU), digital input, digital output, THD metering, and alarming. Also, the PM820, PM850 offer custom on-board logging and individual current and voltage harmonic readings. The PM850 offers waveform capture. The PM870 is the first compact meter to offer voltage and current disturbance (sag and swell) detection and configurable waveform capture.

Technical data

- Easy to install. Panel-mount with only two clips, or DIN rail mounting with or without remote display
- Direct connect voltage inputs. No need for potential transformers (PTs) up to 600 VAC
- Intuitive navigation with self-guided, language-selectable menus
- Large, anti-glare display with white back-light provides summary screens with multiple values
- Custom alarming with time stamping
- Individual harmonic magnitudes and angles, and waveform capture (PM850 and PM870)
- Voltage and current disturbance (sag and swells) detection and configurable waveform capture (PM870)
- Extensive and non-volatile On-board memory
- IEC 62053-22 class 0.5S for real energy. Accurate energy measurement for sub-billing and cost allocation
- Trend curves and short-term forecasting (PM850 and PM870)
- Five channels of WAGES (water, air, gas, electricity, steam) metering capability on all models. A single channel can aggregate pulses from multiple inputs
- Modular and upgradable
- Optional Remote Display (as far as 10 m from the metering unit)
- Optional Ethernet communication port offers Modbus TCP/IP protocol, e-mail on alarm, web server and Ethernet-to-serial gateway. Transparent Ready – Level 1 compliant.



Fit in solutions

→ Monitor and analyse electrical consumption of different workshops

p. 32

PowerView

Make sure you don't miss anything!



PowerLogic PowerView™

✓ Benefits

- PowerLogic PowerView software allows:
 - Reduced power costs
 - Increased the productivity of your facility by optimising the operation of your electrical installation
 - Users to track real-time power conditions and perform remote monitoring of electrical equipment or installations at key distribution points across an electrical network.
- PowerLogic® PowerView™ is an easy-to-use, entry-range power monitoring solution ideally suited for small system applications
- PowerView is a cost-effective power monitoring solution and a key first step towards a comprehensive energy intelligence strategy.

✓ Applications

- Power consumption monitoring
- Cost allocation and sub-billing
- Remote monitoring of electrical installation
- Load studies and circuit optimisation
- Harmonic monitoring (THD)
- Preventive maintenance
- Equipment monitoring.

✓ Range description

- The software polls the network for compatible PowerLogic devices, simplifying system and device configuration
- Connection and data logging begin automatically at factory preset intervals, settings which are easily changed by the user
- Logged values reveal energy waste, unused capacity and historical trends
- Its Report Builder includes time of use configurations, allowing the user to create reports with energy and demand values for time periods with specific billing requirements
- Power costs can be allocated to departments or processes
- Generated reports are exported to Microsoft Excel for easy data access and custom reporting
- PowerView is compatible with the following devices:
 - PM9C, PM210, PM500, ION6200, PM710, PM750, PM810, PM820, and PM850 meters
 - Micrologic P and Micrologic H trip units
 - TORO MC devices.
- PowerView™ offers a wide range of functions:
 - Automated data acquisition from compatible devices
 - Microsoft MSDE data warehouse
 - Backup/restore database management
 - Historical tabular data into Microsoft Excel
 - Historical trending
 - Reporting
 - Interval PC-based historical logging
 - TCP/IP, serial communications
 - Pre-defined meter onboard data log retrieval.



Fit in
solutions

→ Monitor and analyse electrical consumption
of different workshops

p. 32

RTC

Just enough!



RTC

✓ Benefits

The RTC time delay relay allows:

- Reduction of electrical energy consumption by automatically delaying the closing time of a load
- Increased user comfort (example: the ON-OFF switch controls the lighting and ventilation at the same time)
- Time delay relays, an alternative to conventional industrial relays, benefit from the advantages provided by modular size.

✓ Applications

They have a very wide field of applications in commercial and industrial buildings for simple automatic functions:

- Ventilation, heating, coordination and interlocking of roller blinds
- Escalators, pumps, lighting, signs, monitoring.

✓ Range description

Technical data

- Time delay range: 0.1 s to 100 h
- Control circuit:
 - Control and supply voltage:
 - 24 V DC $\pm 10\%$
 - 24...240 V AC $\pm 10\%$
 - RTMF: 12...240 V AC/DC $\pm 10\%$
 - Frequency: 50...60 Hz.
- Operating temperature: -5...+55°C
- Power circuit:
 - Changeover switch (without cadmium):
 - Minimum rating: 10 mA/5 V DC
 - Maximum rating: 8 A/250 V DC and 8 A/250 V AC
 - Mechanical durability: $> 5 \times 10^6$ operations
 - Electrical durability: $> 10^5$ operations (utilisation category AC1).
 - Accuracy: $\pm 10\%$ full scale
 - Minimum control impulse duration: 100 ms
 - Maximum resetting time by voltage break: 100 ms
 - Repetition accuracy: $\pm 0.5\%$ with constant parameters
 - Visualisation of contact status by green indicator light (flashing during the time delay)
 - Unaffected by brownouts upto 20 ms
 - Case protection: IP40
 - Connection by tunnel terminals:
 - 2 x 2.5 mm² single-strand cable without end
 - 2 x 1.5 mm² multi-strand cable with end
 - The single time delay cycle only starts when an auxiliary contact is released (pushbutton)
 - At the end of time delay T, the load is de-energised.



Fit in solutions

→ Manage ventilation in hotel bathroom

p. 50

SunEzy

Convert Sunlight!



SunEzy 2000



PVSSCP65



PVSSCP40



SunEzy BJ41

✓ Benefits

- The photoelectric system SunEzy brings Renewable Energy into your home or your building
- Choosing to invest in a solar energy system is acting for a better environment by reduction of harmful greenhouse gas emission (0.476 kg/kWh of CO₂ reduction average in Europe)
- Reselling this energy to a utility at a pre-determined rate will allow you to compensate your electric bills up to 50% (depending on application) and get a quick return on the investment (from 6 to 8 years)
- A simple offer responding to the most frequent needs with few references and compatible with all the photovoltaic solar panel technologies
- Inverters, pre-wired junction boxes and protection enclosures are simple to design and simple to install, warranted by the world leader of electrical distribution and power conversion.

✓ Applications

- For residential and small commercial
- For buildings.

✓ Range description

- Interconnection: pre-wired junction box to group the DC production of photovoltaic generator. The IP55 boxes enable connections of 2, 4, 6 chains of modules:
 - PV Connectors Multi-Contact MC3®:
 - SunEzy BJ21: PVSBJ21M3
 - SunEzy BJ41: PVSBJ41M3
 - SunEzy BJ61: PVSBJ61M3.
 - PV Connectors TYCO SolarLok®:
 - SunEzy BJ21: PVSBJ21SL
 - SunEzy BJ41: PVSBJ41SL
 - SunEzy BJ61: PVSBJ61SL.
- Protection: pre-wired DC/AC protection enclosure for photovoltaic installation:
 - SunEzy CP40: for indoor installation IP40
 - SunEzy CP65: for outdoor installation IP65
 - SunEzy CP600E: IP65, dedicated to protection of installation with the 600E inverter.
- Conversion: grid tied inverter converts the DC current supplied by the photovoltaic generator into AC current of which whole or part can be sold or consumed. A range made of 5 SunEzy inverters:
 - Maximum Power rating from 2200 to 4400 W, IP43:
 - SunEzy 2000: PVSNNV12000: 2.2 kW
 - SunEzy 2800: PVSNNV12800: 3 kW
 - SunEzy 4000: PVSNNV14000: 4.4 kW.
 - Maximum power rating from 4400 to 5100 W, IP65 (possibility to install outdoor):
 - SunEzy 400E: PVSNNV1400E: 4.4 kW
 - SunEzy 600E: PVSNNV1600E: 5.1 kW.
- Communication: the data logger and software allow local and remote monitoring.



Fit in solutions

- Harness solar energy for your building
- Harness solar energy for your home

p. 106
p. 108

TRC

Always connected for more efficient control!



TRC3

✓ Benefits

- The TRC3 offers you comfort and savings. It allows, via fixed telephone or GSM, remote control of the functions of your installation, for example heating, for a period up to 255 hours
- The TRC3 does not require a specific telephone line. It is designed to operate with answering machines
- A choice of 5 languages for its speech synthesis facilitates its use in most European countries
- Access to remote controls can be protected by code, to avoid untimely controls
- Thanks to its built-in surge arrester, the TRC3 is protected against possible surges on the telephone line
- By means of pushbuttons on the front face, the TRC3 also allows control of the circuits concerned locally.

✓ Applications

- Dedicated to residential and tertiary markets, the TRC3 is designed to be installed by an electrical contractor
- The TRC is recommended to control electrical devices such as heating, hot water, dissuasive lighting,...

✓ Range description

The installation of PRC telephone surge arrester is recommended for protection against atmospheric over voltage passing through the telephone network. Compatible with answering machine or fax, the TRC's control is done by voice frequency telephone buttons or locally by pressing the pushbutton.

- Reference: 16422
- Operating voltage: 230 V CA
- The TRC is not compatible with digital networks
- Outgoing contacts: 5 V - 5 mA (low level), 250 V - 5 A (AC1) maximum
- Bistable: not affected by telephone line cuts or power cuts
- Connection by tunnel terminals: up to 2 x 2.5 mm².



Fit in solutions

→ Remotely control electric heating in apartments rented for vacation

p. 56

TV

Light under your control!



Tvo1000



Vo1000

✓ Benefits

- Remote control dimmers are designed to adjust light intensity as per your needs for an increased comfort and major energy savings
- TV remote control dimmers help make your life more comfortable by letting you adjust lighting to your needs at any time of the day
- Compatible with most types of lighting, they can control high power. On some products (TVo, Vo, TVBo,...), an optical link offers very large extension capacities, concerning both functions and capacity.
- Installed in a switchboard, on a DIN rail, they can be controlled by several pushbuttons.

✓ Applications

- They are particularly intended for the residential and tertiary sectors, for example to light conference rooms, cinemas, restaurants and shops,...

✓ Range description

The TV range is made up of the commercial references:

- TV700: 15287
- TVe700: 15285
- TVo1000: 15289
- TVBo: 15297
- Vo1000: 15290

Technical data

- For incandescent or LV (230 V) and ELV (12/24 V) halogen lamps:
 - TVe700, TVo1000, Vo1000.
- For incandescent or LV halogen lamps (230 V):
 - TV700.
- For fluorescent lamps with electronic ballast and 1-10 V control:
 - TVBo.
- Local control (on front panel) or remote control by single or illuminated pushbutton:
 - TVo1000, TVBo.
- Remote control by single pushbutton:
 - TV700.
- Remote control by single or illuminated pushbutton
 - TVe700.
- Remote control by single pushbutton (variation available only on front panel):
 - Vo1000.
- Optical link for communication with other devices without cabling:
 - TVo1000, TVBo, Vo1000.



Fit in solutions

→ Create restaurant mood lighting

p. 72

Unica

Light under your control!



Dimmer



Dimmer



Time delay switch



Movement detector switch

✓ Benefits

- Unica can reduce operating cost by optimising energy consumption whilst improving user comfort. Unica breaks up into three ranges:
- Unica dimmer switches improve comfort and reduce lighting-related energy spending. By adapting the light level to the desired atmosphere in the room and taking into account the natural light, dimmed lighting uses less electricity than full power lighting and extends the lifetime of the load
- Unica movement detector switches the lighting on automatically when it is necessary in corridors, for example. For children, disabled people or persons with luggage, the benefit is obvious. Lighting time is reduced to the minimum thanks to built-in adjustable time setting
- Unica time delay switches may also be used in entrance corridors and toilets. They provide major energy savings by switching the lighting off automatically after an adjustable period of time (adjustable from 2 s to 12 mn). This device can easily be localised due to a blue locator lam on the front.
- With a complete range of more than 150 electrical and electronic functions in light and power control, socket-outlets, VDI, signalling, protection, comfort and energy saving, and wireless systems, Unica provides the broadest range of solutions, from the most traditional to the most advanced
- Moreover this range provides maximum flexibility and versatility in any type of installation and application, adapted to the market needs (different flush mounting boxes, screw or screwless terminals, multi-standard socket outlets,...) covering all aesthetic needs from the basic to the most trendy ones
- Besides, by just changing the cover frame in the last step of the installation, the modular design of the Unica range reduces the stock of inserts for the wholesaler, helping him to save time and enabling at the same time a higher rotation of his stock.

✓ Applications

Unica applications are in both residential and tertiary segments, in CEE60 or Italian/American boxes, flush or surface-mounted installations, under-floor or false ceilings, wall installation trunkings, posts and poles.

✓ Range description

Unica offers a broad range of functions in white ivory or aluminium or graphite finishing completed by 6 different ranges of cover frames: Unica Basic, Colors & Quadro (CEE60 boxes), Unica Allegro (American boxes 1 to 6 modules).

Unica Plus & Unica Top: more sophisticated ranges for higher segments. Cover frames available in 20 different colors for CEE60 boxes, Italian and American boxes as well in 3, 4 modules or 2 ranks of 4, 6 modules.

Technical data

	Dimmer	Time-delay switch	Movement detector switch
Incandescent & Halogen	40 – 1000 W	1840 W – 8 A max	2000 W max
ELV halogen with Ferro-transformer	40 – 1000 VA	1840 W – 8 A max	1050 VA
ELV halogen with electronic transformer	20 – 350 VA	1840 W – 8 A max	1150 VA max
Fluo lamps with ballast	400 VA with 1-10 V electronic ballast	1840 W – 8 A max	2000 VA with conventional ballast
Compact fluo lamps	15- 60 W	1840 W – 8 A	500 VA
Movement detection			9 x 18 m
Presence detection			6 x 12 m
Time delay		2 s to 12 minutes	2 s to 20 minutes
Luminosity			5 to 1000 lux



Fit in solutions

- Manage automatic lighting by presence detection in home p.76
- Manage automatic lighting in large areas with movement detectors p.78
- Manage lighting in building stairways p.86
- Optimise room lighting through the use of dimmers p.96

Varplus²

Give oxygen to your electrical network!



Varplus² IP00



Varplus² IP20



Varplus² IP42

✓ Benefits

- Electricity bill savings (up to 10%):
 - Thanks to the erasing of your reactive power invoice.
- Installation cost optimisation (up to 30%):
 - Increase the available power by compensating the reactive power close to the loads
 - Optimise the size of transformers, cables, busbar,...
- Improvement of the energy quality on your network (up to 50%):
 - When associated with detuned reactors.
- Contribution to environmental benefits (up to 3%):
 - Thanks to reduction of energy consumption.
- Simplicity:
 - Only one foot print capacitor for the entire offer
 - Installation in any position, vertically or horizontally
 - Possibility of wiring connection at 360°.
- Peace of mind:
 - Life time: 130 000 hours (15 years)
 - Protection against all electrical faults by HQ protection system
 - Safety of personnel: internal discharge resistance and no earthing connection needed.

✓ Applications

- Make savings on electricity bill: power factor correction
- Make savings on the size of your installation: power factor correction.

✓ Range description

- Three-phase capacitors 50/60 Hz
- Varplus² modular capacitors are used to build capacitor banks for power factor correction on low voltage networks
- They allow by their different assembling combinations to cover all the power ratings you could need, depending on the voltage, frequency and harmonic pollution level of the network.

Technical data

- Frequency: 50 or 60 Hz
- Network voltage: 230 to 690 V
- Rated voltage: 280 to 690 V
- Capacitor rating power: 2.5 to 20 kvar
- Possibility of association with detuned reactors
- Detuned reactor tuning: 2.7(135 Hz), 3.8(190 Hz), 4.3(215 Hz)
- Temperature class: class D (55°C)
- Standards: CEI 60831 1/2, CSA 22-2 N°190, UL 810.



Fit in solutions

→ Reduce electricity consumption and costs of a shopping centre

p. 40

Varset

The complete solution!



Varset, A3 cubicle



Varset, A4 cubicle



Varset, C1 enclosure



Varset, C2 enclosure

✓ Benefits

- Electricity bill savings (up to 10%):
 - Thanks to the erasing of your reactive power invoice.
- Installation cost optimisation (up to 30%):
 - Increase the available power by compensating the reactive power close to the loads
 - Optimise the size of transformers, cables, busbar, ...
- Improvement of the energy quality on your network (up to 50%):
 - When using the Harmony range.
- Contribution to environmental benefits (up to 3%):
 - Thanks to reduction of energy consumption.
- Simplicity for contractors:
 - Simple commissioning with Varlogic power factor controllers
 - Gravity centre has been dropped making it easy to carry and to install
 - Easy to access by fork-lift trucks
 - Easy to connect the wires connection
 - Part numbers with or without incoming circuit breaker.
- Tranquillity for end users:
 - Product 100% factory tested before delivery
 - Protection against direct contact thanks to the protection plate
 - Safety of the operator during the maintenance operation thanks to the internal discharge resistor
 - Cooling air flow optimisation.

✓ Applications

- Make savings on electricity bills: power factor correction
- Make savings on the size of your installation: power factor correction
- Power quality supplied: limitation of pollution to the network when using Harmony range

✓ Range description

Automatic capacitor bank 50 Hz

- Varset is a capacitor bank ready to install and to use. This is a complete solution for automatic power factor correction with Varlogic controller. This range is composed of compensation enclosures or cubicles with or without incoming circuit breaker to answer to all possible network configurations (Classic, Comfort and Harmony).

Technical data

- Frequency: 50 Hz
- Network voltage: 400/415 V
- Capacitor rated voltage: Classic, Comfort and Harmony
- Reactive power: 7.5 to 1200 kvar
- Detuned reactor tuning order (Harmony range): 2.7(135 Hz), 3.8(190 Hz), 4.3(215 Hz)
- Temperature class: -5°C to +40°C
- Standard: IEC 60439-1, IEC 61921, EN 60439-1
- Accessory free-standing plinth for enclosures
- With or without incoming circuit breaker Compact NS.



Fit in solutions

→ Reduce electricity consumption and costs of a manufacturing plant

p. 38

Varset Direct

The complete solution!



Varset Direct, A2 cubicle



Varset Direct, C1 enclosure



Varset Direct, C2 enclosure

Benefits

- Electricity bill savings (up to 10%):
 - Thanks to the erasing of your reactive power invoice.
- Installation cost optimisation (up to 30%):
 - Increase the available power by compensating the reactive power close to the loads
 - Optimise the size of transformers, cables, busbar,...
- Improvement of the energy quality on your network (up to 50%):
 - When using the Harmony range.
- Contribution to environmental benefits (up to 3%):
 - Thanks to reduction of energy consumption.
- Simplicity for contractors:
 - Gravity centre has been dropped making it easy to carry and to install
 - Easy to connect the wires connection
 - Plug and play.
- Tranquillity for end users:
 - Product 100% factory tested before delivery
 - Protection against direct contact thanks to the protection plate
 - Cooling air flow optimisation.

Applications

- Make savings on electricity bills: power factor correction
- Make savings on the size of your installation: power factor correction
- Power quality supplied: limitation of pollution to the network for harmony range.

Range description

- Varset Direct is a capacitor bank ready to install and use. This is a complete solution for fixed power factor correction. This range is composed of compensation enclosures or cubicles with or without incoming circuit breaker to answer to all possible network configurations (Classic, Comfort and Harmony).

Technical data

- Frequency: 50 Hz
- Network voltage: 230 V and 400/415 V
- Capacitor rated voltage: Classic, Comfort and Harmony
- Reactive power: 10 to 60 kvar under 230 V and 5 to 150 kvar under 400/415 V
- Detuned reactor tuning order (Harmony range): 2.7 (135 Hz), 3.8 (190 Hz), 4.3 (215 Hz)
- Temperature class: -5°C to +40°C
- Standard: IEC 60439-1, IEC 61921, EN 60439-1
- Accessory free-standing plinth for enclosures
- With or without incoming circuit breaker Compact NS.



Fit in solutions

→ Reduce electricity consumption and costs of a manufacturing plant

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We are committed to safeguarding our planet!

Aligned with its Principles of Responsibility, Schneider Electric is committed to:

Meeting current environmental requirements and exceeding them when relevant.

Designing products and solutions that respect the environment through an eco-design process.

Offering its customers products and solutions that are safe, energy efficient and environment friendly.

Linking innovation and continuous improvement to meet new environmental challenges.

Promoting environmental awareness by providing training for everyone and developing expert networks for best practices.

Continuously improving its environmental performance for the ongoing satisfaction of the communities the Company serves, as well as its end users, employees, customers and shareholders, both today and tomorrow.

Reporting to all stakeholders about the impact of the Company's activities on the environment.

Contributing to the planet's sustainable development.

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Schneider Electric Industries SAS

89, boulevard
Franklin Roosevelt
F-92506 Rueil-Malmaison
France
Tel: +33 (0)1 41 29 85 00
<http://www.schneider-electric.com>

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