



## **Solutions**

# **Building Automation**

# Building Automation Solutions for



**Metering**

**Lighting control**

**HVAC systems**

**Integrated solutions**

**Parking guidance system**

**Monitoring and protection**

## ABOUT CARLO GAVAZZI

Carlo Gavazzi Automation is a multinational electronics group active in the design, manufacture and marketing of electronic equipment targeted at the global markets of industrial and building automation.

Our history is full of firsts and our products are installed in a huge number of applications all over the world. With more than 80 years of successful operation, our experience is unparalleled.

We have our headquarters in Europe and numerous offices around the world.

Our R&D competence centres and production sites are located in Denmark, Italy, Lithuania, Malta and the People's Republic of China.

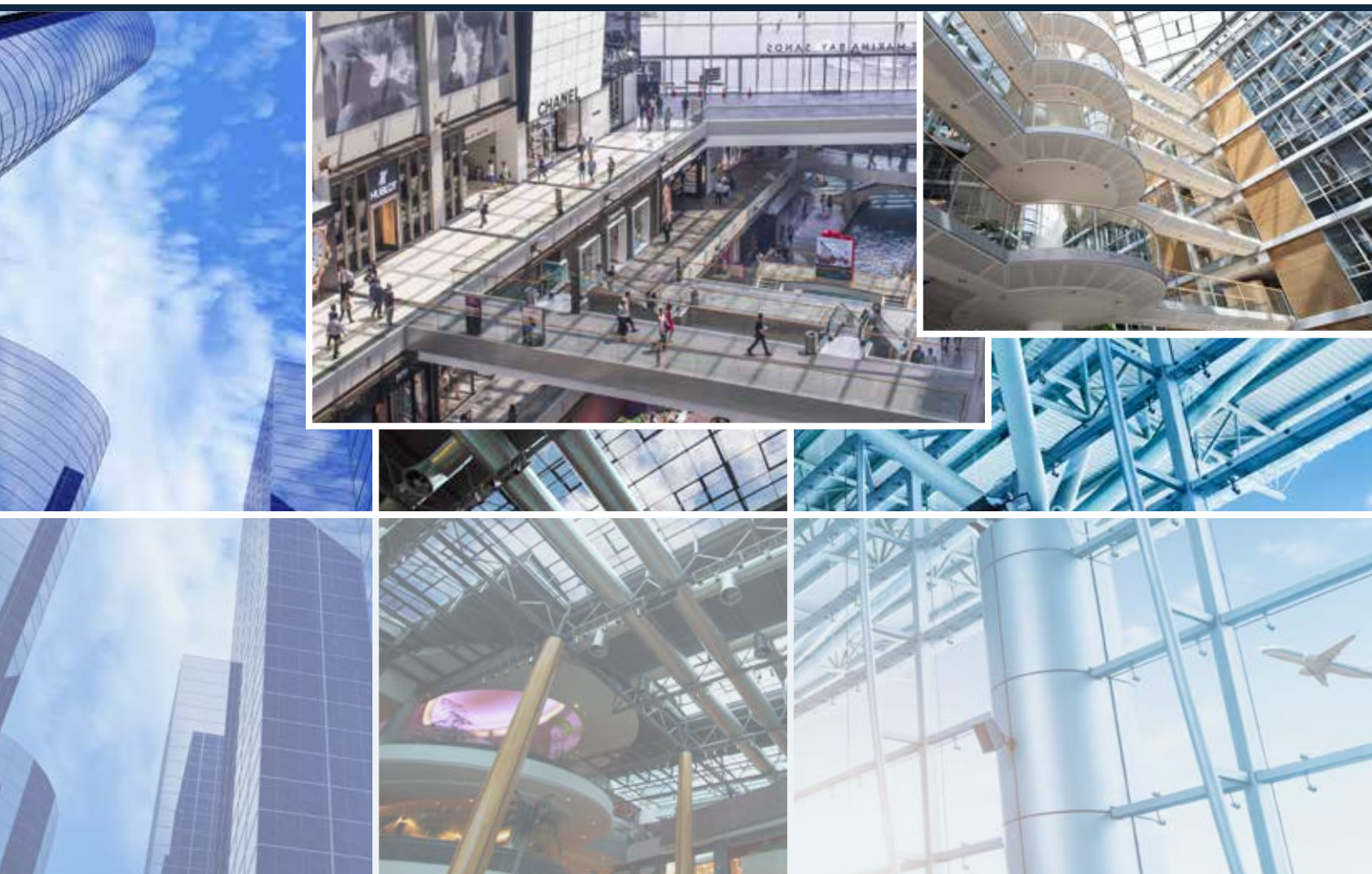
We operate worldwide through 22 of our own sales companies and also selected representatives in more than 65 countries, from the United States in the West to the Pacific Rim in the East.

Our core competence in automation spans three product lines: Sensors, Switches and Controls.

Our wide array of products includes sensors, monitoring relays, timers, energy management system, solid state relays, safety devices and fieldbus systems.

We focus our expertise on offering state-of-the-art product solutions in selected market segments.

Our customers include original equipment manufacturers of packaging machines, plastic-injection moulding machines, food and beverage production machines, conveying and material handling equipment, door and entrance control systems, lifts and escalators, as well as heating, ventilation and airconditioning devices, and also panel builders, installers and system integrators.



### **DESIGNED TO MEET MARKET REQUIREMENTS**

Building Automation Systems consists of the networking of electronic devices designed to monitor and control the mechanical, security, lighting, HVAC and humidity control and ventilation systems in buildings such as:

- **Shopping malls**
- **Offices**
- **Airports**
- **Hospitals**
- **Schools**
- **Carparks**
- **Production facilities**
- **Logistics centres**

### **Commercial Buildings and Infrastructures**

New energy-efficient buildings and the improvement of existing ones are arguably the most important initiatives we can take to reduce energy consumption and limit CO<sub>2</sub> emissions. Energy in these buildings is mainly used for lighting, air-conditioning, ventilation, heating, refrigeration, lifts and motors. The majority of these buildings already exist, so there are great opportunities to improve their energy performance through targeted initiatives, upgrades and retrofitting. To meet the mandatory requirements for energy saving, building owners must comply with efficiency improvement regulations.

### **Production Facilities and Processes**

Predictive maintenance and energy saving are probably the most important issues for improving the efficiency of machinery and reducing overall energy consumption and production downtime. The continuous and efficient operation of equipment is a crucial element in optimising and reducing energy use. In particular, preventing equipment failure through predictive maintenance is very cost effective, both in terms of production output efficiency and in terms of operating costs. High energy users are: motors, electric heaters, lighting systems, air-conditioning units and compressors; all these have to be monitored and optimised in order to reduce energy consumption.

# Building Automation

## Metering



### Energy meters/analyzers

**EM24**  
**EM26**  
**EM340**

### Power quality analyzers

**WM40**  
**WM30**  
**WM20**

### Current transformers

**CTD**  
**TCD**  
**ROG4K**

### Double 3-phase energy analyzers

**EM270**  
**EM271**  
**EM280**

### Web servers

**VMU-C EM**  
**Em<sup>2</sup>-Server**

The accurate measurement of energy consumption is the first step in the collection and analysis of the information required for effective energy management. Information about the quality of the power used can improve on-site efficiency and facilitate troubleshooting in the case of any problem to the electrical installation.



In many commercial buildings the need to control and measure the energy consumption of single users is becoming more important for an accurate cost allocation. Our energy meters and data logging systems provide information so that operators can identify consumption trends and take corrective action.

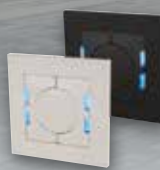
By analysing the energy consumption profile, operators can also aggregate loads and negotiate more favourable tariffs with utility companies. Alarm thresholds can be set to warn if preset limits are reached, so that corrective action can be taken. Real-time power consumption monitoring allows maintenance managers and energy managers to anticipate overloads, avoid

circuit breaks and not exceed contractual tariffs. You can now monitor in detail each single load of the installation thanks to the new Quick-fit energy meters EM270/271/280.

These meters can monitor up to 2 three-phase loads at the same time, or up to 6 single-phase channels. The combination of advanced meters and special solid and split-core current transformers, has been specifically developed to reduce installation and commissioning time.

This innovative solution is not only suitable to be combined with MCCBs for main metering, but also with the 6-channel solid-core and split-core sensing units, MCBs, for sub-metering.

# Lighting control



**BACnet controller**

**DALI bus generator**

**PIR + Lux meters**

**Light switches**

**Analogue input modules**

**Decentral output modules**

**SB2WEB24**

**SB2DALIT8230**

**SHSQP360L  
SH...P90L  
SH...P150/150L**

**B..X-LS4-U**

**BDB-INCONX-U  
SHPIN**

**BDA-RE13A-U**

The use of electricity for lighting obviously has a considerable impact on energy consumption in commercial buildings, infrastructures, production facilities and logistic centres.

In the case of hospitals and airports, or in the case of shiftwork, lighting is used 24 hours per day, all year round, heavily impacting on total consumption. Energy bills can be reduced by installing energy-efficient control systems.

Using lighting controls for dimming or turning lights on and off, such as dimmers and luminosity and occupancy sensors, energy efficiency is increased.

- Dimmers reduce the power supplied to the bulbs, limiting consumption and increasing their life cycle.

- Lux sensors dim or turn lights on or off in response to natural lighting levels.
- Presence sensors activate lights when a person is in the area and turn the lights off after the person has left.

### Tunable white DALI control

Thanks to the introduction of the Digital Addressable Lighting Interface (DALI) combined with ever-improving LED technology, all the mainstream LED lighting companies are moving to offer products which can change the white of the light from warm (2500K) to cold (6000K) to follow the behaviour of natural white. This feature is called tunable white and is the capability of changing the temperature (K) of the

colour of the light. Thanks to tunable white, we can now personalise lighting to support the healthy functioning of our circadian rhythms and improve mood, performance, and sense of wellbeing. Such daylight simulation is ideal for use in offices, where we have little access to the beneficial properties of daylight, helping us to feel on top form every day, since static lighting conditions might disrupt our biological rhythms. Warmer temperature is more relaxing, while cooler temperature creates a motivating environment. The Sx2WEB system can be used to mimic the natural cycle of daylight, or it can be programmed to create specific scenes at certain times of the day.

# Building Automation

## HVAC systems



### Soft starters

**RSBD/RSGD  
RSBT/RSWT**

### Environmental sensors

**SHSU  
ESTHD**

### PIR + Lux meters

**SHSQP360L  
SH...P90L  
SH...P150/150L**

### Solid state relays

**RGC1A/RGC1P  
RGC2A/RGC2P  
RGC3A/RGC3P**

### Monitoring relays

**DPA52  
DPB52**

### Energy meters/analyzers

**EM210  
EM110/EM111  
EM112**

Commercial buildings and infrastructures, production sites and logistics centres, use a large percentage of energy in HVAC systems.

This is due to the presence of a large number of people who need to be offered the most comfortable environment.

Most of the motors used in ventilation systems are simply switched on and off with no speed control.

Various switching modes are available in the new RGC1P (1-phase) and RGC3P (3-phase) solid state controllers to cater for different application needs, such as phase angle switching for speed

control and light dimming and full cycle switching for temperature control.

The version with soft starting prevents high inrush currents associated with loads which have a high cold/hot resistance ratio.

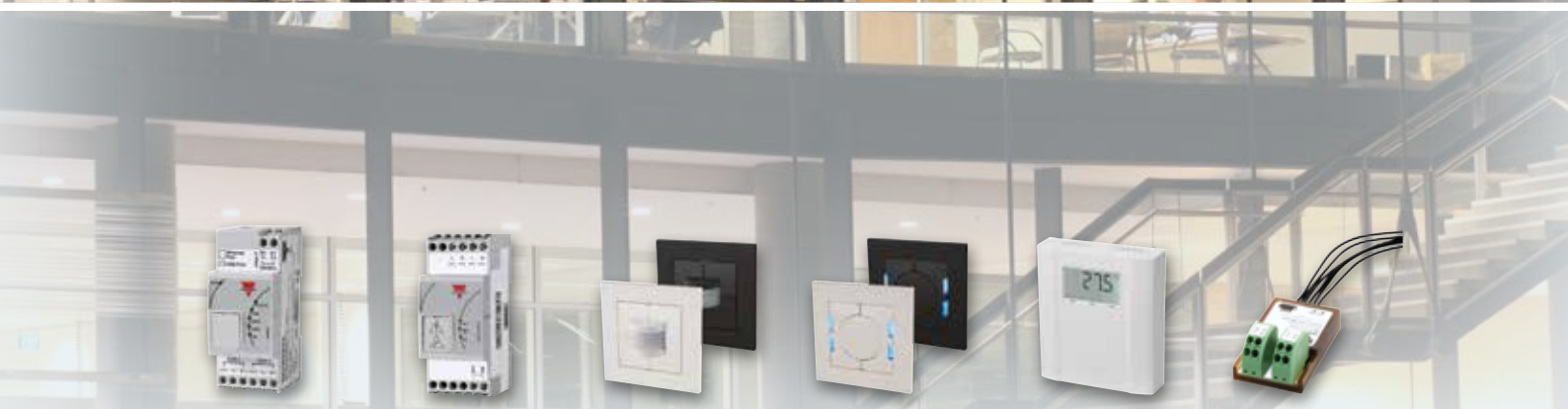
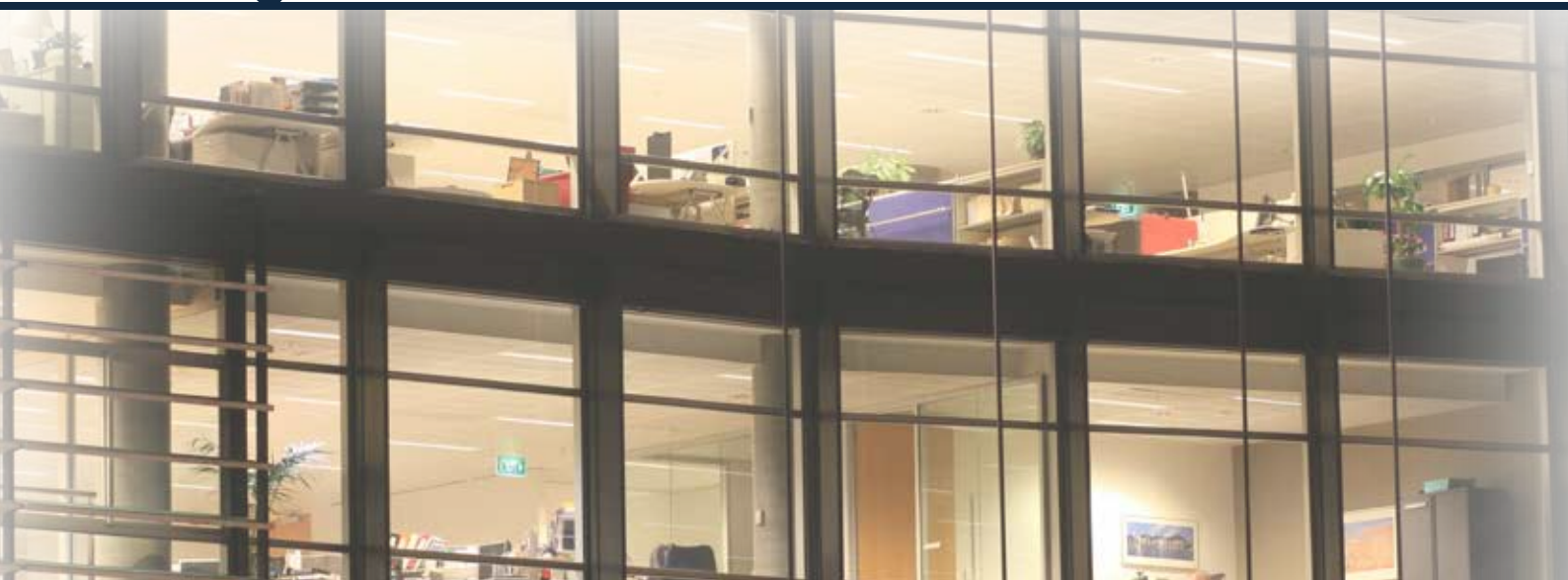
RSBD and RSBT soft starters are used to limit the scroll compressor starting current thereby eliminating light flickering.

RSWT and RSGD soft starters are used to control the acceleration of pumps and ventilators to reduce mechanical stress on the motor shaft.

Presence sensors provide zoned temperature control by setting on/off time schedules for the right climate conditions.



# Integrated solutions



**BACnet controller**

**SB2WEB24**

**DALI bus generator**

**SB2DALIT8230**

**PIR + Lux meters**

**SH...P150/150L  
SHSQP360L  
SH...P90L**

**Light switches**

**B..X-LS4-U**

**Environmental sensors**

**SHSU....D  
SHSU....L  
SHSU....**

**Decentral I/O modules**

**SHPIN....  
BDB-INCONX-U  
BDA-RE13A-U**

Carlo Gavazzi's innovative bus technology, Dupline®, allows system integrators to design and build efficient building automation systems integrating lighting control, HVAC and metering at the field level.

The Dupline® bus greatly simplifies the installation and commissioning of a building automation system. Sensors and I/O-modules are bus-powered and designed for de-central installation, hence the cabling is merely a question of multi-dropping the 2-wire bus from module to module.

This provides a significant installation cost reduction compared to the traditional star wiring, where every signal needs a wire back to the

controller, and every module needs power supply connection. Furthermore, the system provides high flexibility for last minute changes and future enhancements, because the 2-wire cable is already available throughout the installation, so it is easy to add extra modules.

The brain in the system is the SB2WEB BACnet controller, which performs the intelligent functions, and at the same time provides the link to any upper level BMS through BACnet/IP. During configuration, the PC-based programming tool scans the Dupline® network and automatically assigns addresses to all the data points and

creates the relevant BACnet objects. This allows any BACnet compatible DDC controller to use Dupline® as remote I/O by reading and controlling the data points through standard BACnet objects.

In the lighting control system, Dupline® is used for presence and movement detectors (PIR), lux sensors and light switches etc, while the DALI bus is used for the lighting actuators (ballasts).

The DALI controller is a 2-DIN module, which connects to the Dupline® bus at any point. The SB2WEB provides a range of pre-defined lighting functions, including the much used constant light control.

# Building Automation

## Parking guidance system



**Carpark controller**

**SBP2WEB24**

**Carpark bus generator**

**SBP2MCG324**

**45° ultrasonic sensors**

**SBPSUSL45**

**360° LED indicator**

**SBPILED**

**Carpark display adapter**

**SBP2DI48524**

**Carpark displays**

**SBPDISxxxx**

The Carpark system is based on Carlo Gavazzi's expertise in sensing and communications technology within the industrial automation market.

Our patented Dupline® 3-wire bus forms part of a tried and tested network, with more than 150,000 installations worldwide. The system is completely scalable and can be used in any type and size of indoor carpark. In spite of its advanced functions, the system is easy to install and configure, allowing detection, counting and indication of vacant spaces. By means of signs with directional arrows and LED indicators, drivers are guided to the closest vacant parking bay, resulting in considerable time saving,

especially if only few spaces are vacant. Our Parking Guidance System not only provides drivers with more convenience and less stress, but by monitoring the whole situation of the parking area it increases efficiency in car flow, reducing energy costs. Cars can be directed to pre-selected areas of the carpark, while the system ensures that lighting and ventilation systems are disabled in unoccupied zones. Carlo Gavazzi's product range for carpark systems, in addition to the controller, sensors, LED indicators and displays, also includes products for smart building functions.

A unique feature of the system is the possibility to integrate control of

lighting and ventilation into the same structure. Lighting and ventilation are the two biggest energy consumers in a carpark, and often they are simply left ON continuously.

By using demand-based control functions, where lighting and ventilation are switched on when needed, significant savings can be achieved.

By means of its built-in BACnet communication capability, the controller can be seamlessly integrated into any Building Management System. Our CO sensors can monitor the CO level emitted by the vehicles in the car park and provide an alarm in case the CO level reaches a hazardous level.



# Monitoring and protection



## Power transducers

CPT

## Current transformers

E83  
A82  
MP3

## Earth leakage protection relays

DEA71  
DEB71

## 3-phase monitoring relays

DPA52  
DPB52

## Current monitoring relays

DIA53  
DIA01

## Surge protection devices

DSF A/P  
DSB A/P  
DSB51XXDP

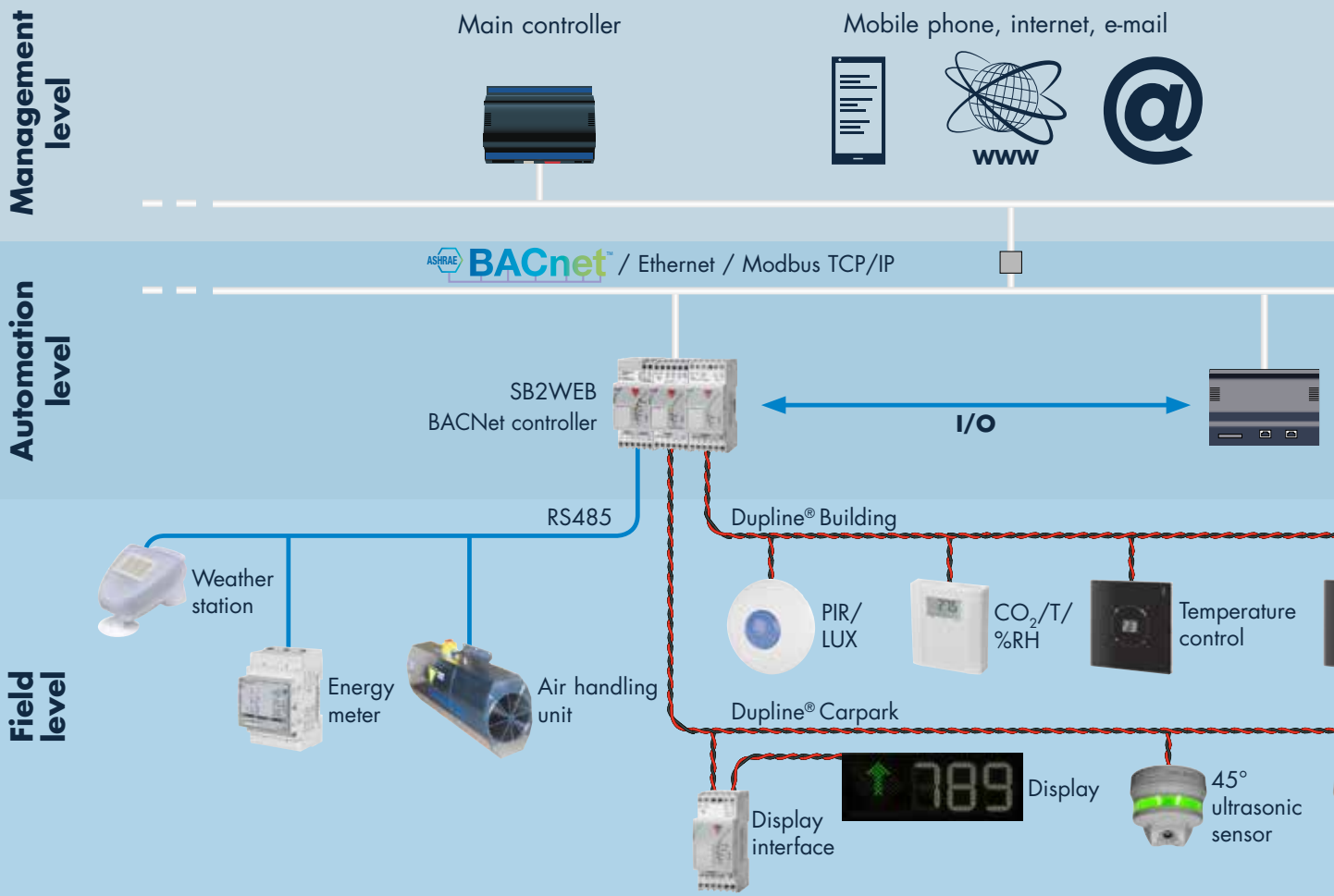
The level and stability of the power supply are fundamental requirements for reliable equipment operation; too low or too high voltage levels could cause failures. It is important to monitor the instant level of voltage as well as voltage sags and transients which may occur over time. In a production facility it is quite common to use and add to electrical loads, especially these with high in-rush current. Voltage sags indicate that a system is not able to respond properly to load requirements, leading to production process interruptions. Monitoring voltage balance in a three-phase power distribution system is crucial for the efficiency of motors and any 3-phase load; an unbalanced supply can cause poor performance of the equipment,

leading to premature motor failure due to increased mechanical stress. Controlling harmonic distortion helps prevent failures of critical equipment such as motors and transformers; the main problems caused by harmonics are overheating of motor windings and transformers, higher susceptibility to voltage sags, excessive current to neutral conductors and noise, all of which reduce the lifespan of the equipment. Within our product range, we can offer devices to monitor the correct level of voltage and frequency of single and 3-phase systems. Phase sequence and loss, along with the voltage, can be detected, notifying the user if a system failure occurs. The voltage level of the start-up battery can also be properly monitored.

We can also offer current monitoring devices capable of sending alarm signals when an over-current situation is detected. Our Surge Protection devices can be used to protect devices connected to the mains. A special range has been developed for the protection of Dupline® buses as well as for RS485 communication lines. The modular residual current devices DEA71 and DEB71 protect electric installations against the risk of fire or electrocution of people, in case of insulation failure. They are able to detect a leak of current to the Protective Earth by means of the external Core Balance Current Transformer (CTG), provide a warning signal at 60% and trip the MCB, through the relay output, when the leakage exceeds 80% of the set fault current.

# Building Automation

## Lighting, environmental and carpark control



### Dupline® into a BAS infrastructure

The Dupline® fieldbus carries out the task to link together all the field level devices in a simple and cost-effective way, and to centralize the data in the BACnet controller SB2WEB. Any DCC and BMS front end with the capability to act as BACnet client then have access to all the Dupline® data points via the BACnet/IP connection, thereby eliminating the need for hardwired I/O.

The SB2WEB programmable functions include several pre-defined lighting control functions for energy saving, based on presence detection, lux level and dimming of lights via the DALI bus. All of the functions can be controlled and managed via BACnet objects, for example adjusting operating parameters like lux threshold and energy saving timer.

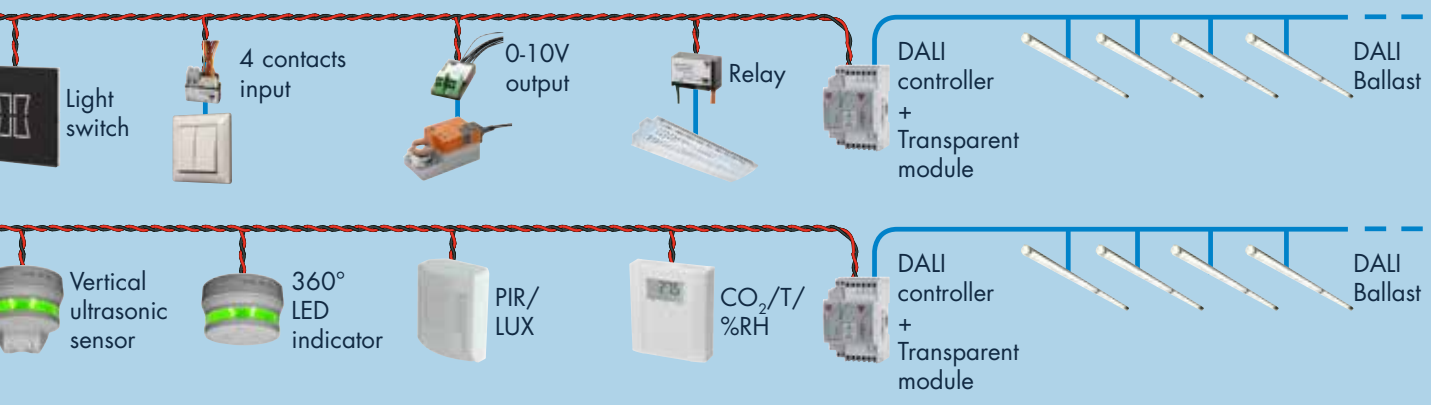
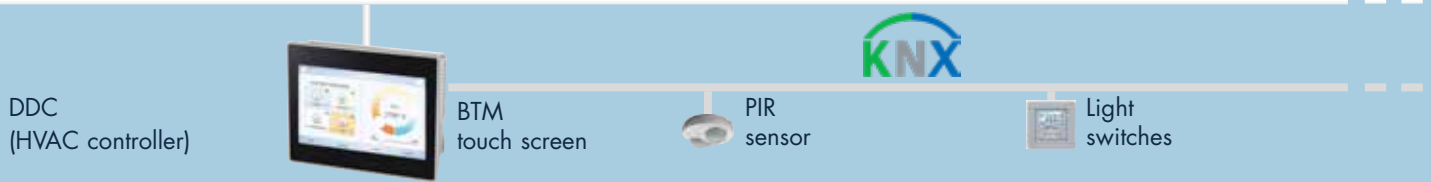
### Dupline® at a glance

- 2-wire bus with free topology
- Bus-powered sensors and I/O-modules
- Long transmission distance
- No need for special cables (no shield required)
- High noise immunity
- Easy installation and commissioning
- Technology proven in 150.000+ industrial installations
- Cost-effective



BACnet is standard communications protocol for building automation and control networks. It is an ASHRAE, ANSI, and ISO standard protocol too.

ASHRAE **BACnet** / Ethernet / Modbus TCP/IP



### BTM touch screen

The BTM touch screen is now available with BACnet on board in order to control and visualise any data point with an eye-catching user interface: the whole building is under control just with a fingertip.

In addition, using the new KNX plug-in module, the BTM becomes the perfect gateway to integrate Carlo Gavazzi's home and building automation system with the KNX products.



### Dupline® benefits

#### Benefits for system integrators

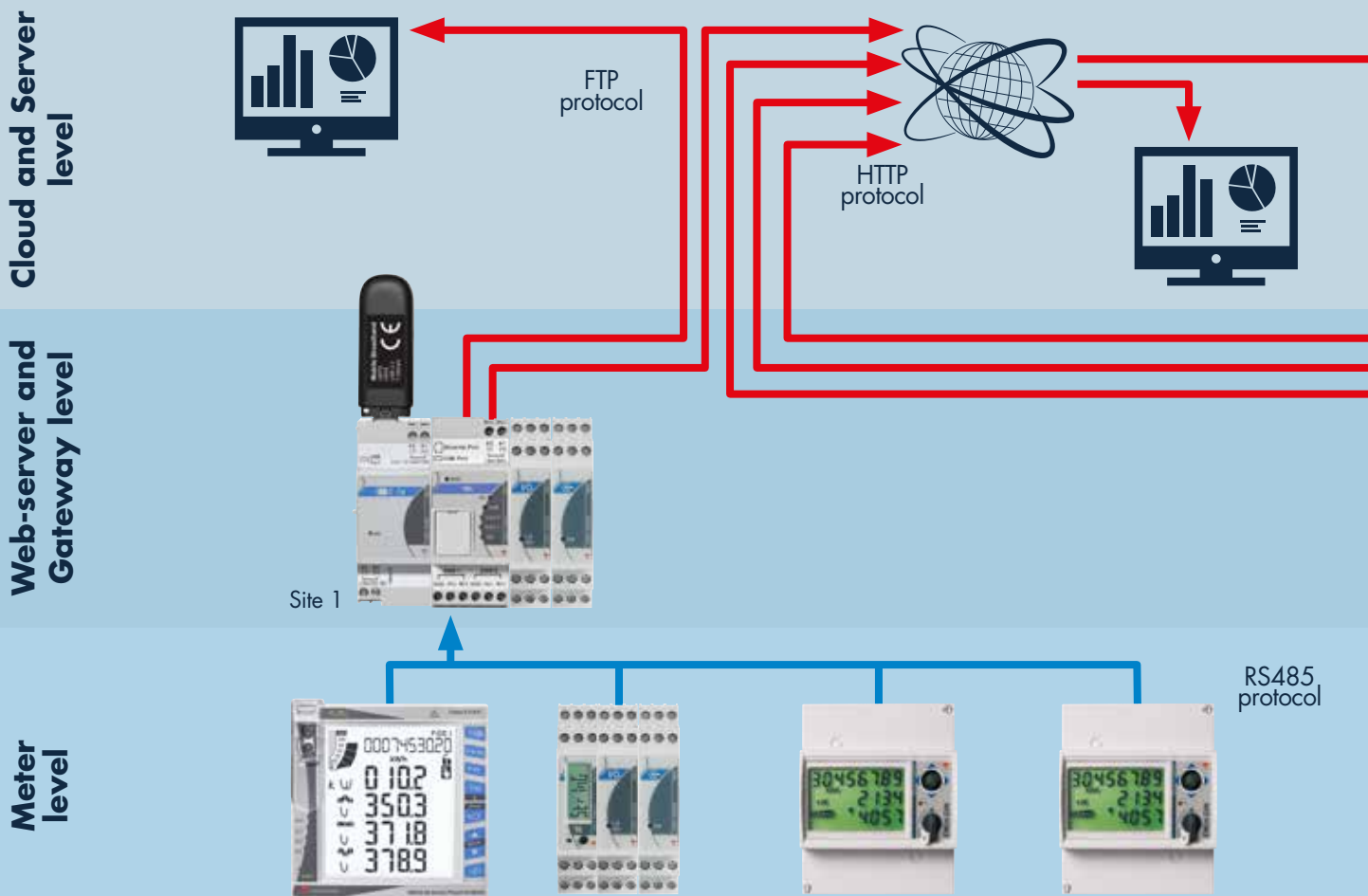
- Simplified system design
- Easier planning
- Reduced installation time
- Reduced commissioning time
- High flexibility for last minute changes and system enhancements
- Enhanced diagnostic
- Reduced cost of implementation

#### Benefits for building owners

- High flexibility for future enhancements
- Reduced maintenance cost
- Reduced cost of implementation

# Building Automation

## Energy efficiency monitoring

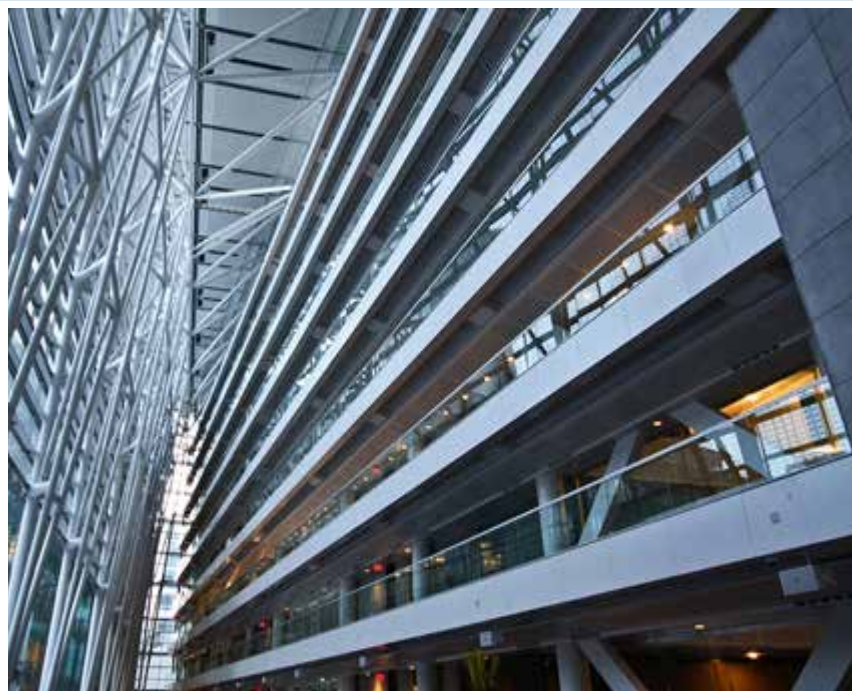


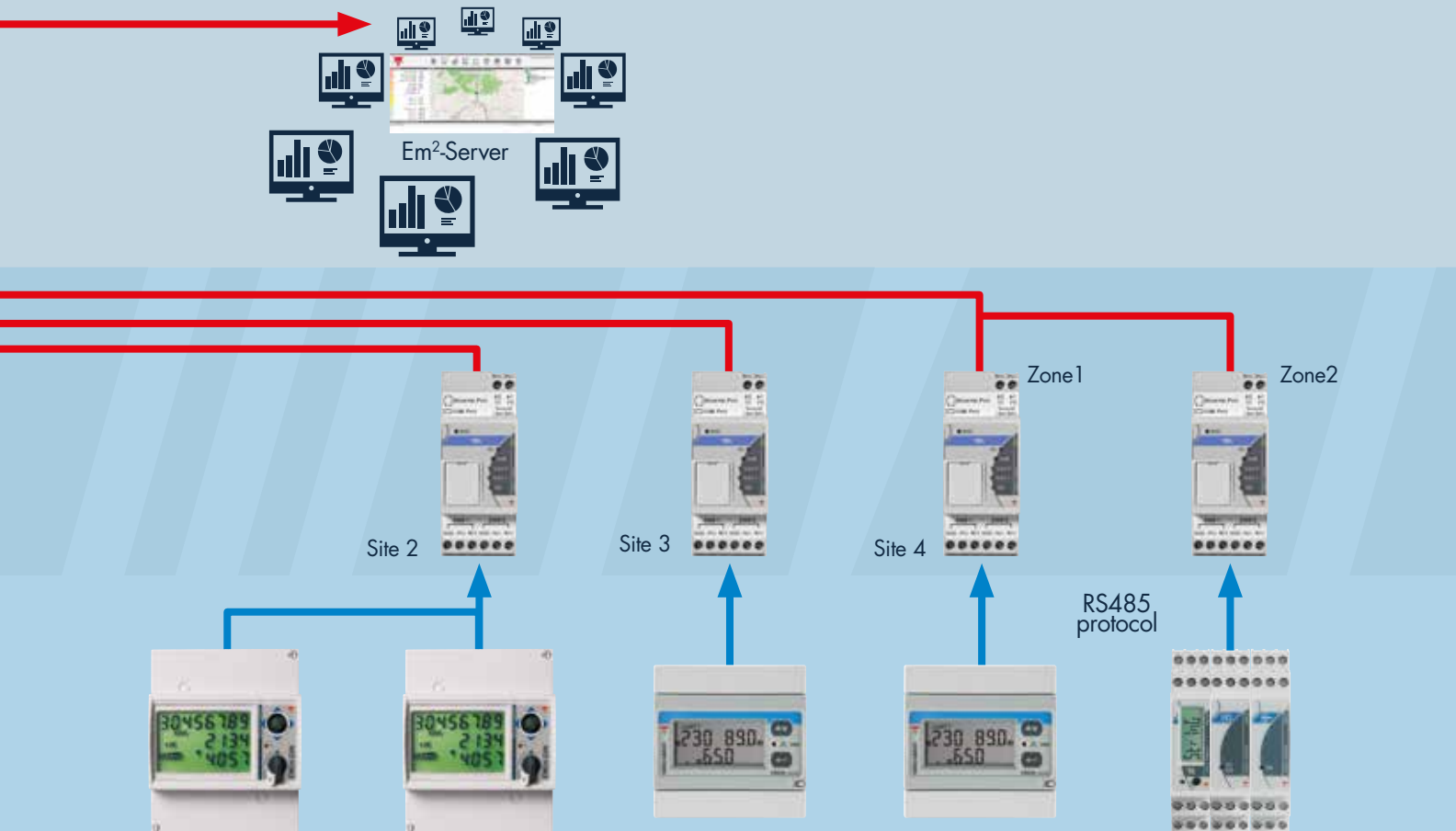
### VMU-C EM in Energy Monitoring

The VMU-C EM is the core solution for effective Energy Monitoring in applications of all sizes. It collects measurements from energy meters through the fieldbus; it stores information (variables and alarms) in its local database and displays it through its web-based graphical user interface.

The whole system set-up and operation is possible via the VMU-C's web interface, without any external software.

The VMU-C EM can exchange data with other systems by means of standard FTP/HTTP communication. Multi-site applications can be managed by adding the Em<sup>2</sup>-Server; virtual machine-based software.





### VMU-C EM at a glance

- No crash or compatibility problems due to different operative systems, different languages, libraries, etc.
- Improved IT security
- Application-focused software embedded inside industrial grade hardware: no need for a dedicated PC for monitoring
- On-site database
- Polling device, data-logger and Ethernet gateway in a single compact unit
- Modular solution for additional inputs/outputs
- Optional modular modem for wireless Ethernet connections
- Scalability to multi-site applications by means of Em<sup>2</sup>-Server solution.



### Em<sup>2</sup>-Server multi-site cloud solution at a glance

- Multi-site management software based on virtual machine technology
- Flexible operation and set-up
- Reliable data communication with VMU-C EM
- Up to 100 geographically different sites can be managed with a single unit
- A single supplier for energy meters, gateways and data management solutions
- Scalable solution

# Building Automation

## Our product range

### BACnet controller



#### SB2WEB24

- Multi-protocol device
- Manages up to 7 Dupline® Bus segments
- Connects directly to Energy Meters via Modbus RS485
- Any data point and internal value available as BACnet object
- BTL certified

#### MAIN FEATURES

- Easy and fast configuration
- Dimensions: 2-DIN modules
- DC power supply

### Wired bus generator



#### SH2MCG24

- Connection to SH2WEB24 via internal bus or terminals via the high speed bus
- Up to 7 SH2MCG24 can be connected on the same network, considering the sum of SH2MCG24 and SH2WBU24

#### MAIN FEATURES

- Dimensions: 2-DIN modules
- DC power supply

### DALI bus generator



#### SB2DALI230

- Interfaces the Dupline® bus to standard DALI lighting actuators
- Operates as DALI controller and power supply with possibility to connect up to 64 ballasts to the DALI bus output
- Tunable white control
- Multiple SB2DALI230 units can be connected to the same Dupline® bus

#### MAIN FEATURES

- Allows the powerful combination of Dupline® and DALI
- Compact dimension: 2-DIN module
- 230 VAC power supply

### Repeater modules



#### SB2REP230

- Regenerates the Dupline® carrier signal
- Output current load up to 300 mA
- Extends network length
- Isolates the primary and secondary Dupline®
- 230 VAC power supply

#### MAIN FEATURES

- Extends the length of the bus cable
- 230 VAC power supply suitable for decentralised installation
- Compact 2-Din housing

### Digital input modules 4 inputs



#### SH2INDI424

- 4 digital inputs NPN, PNP, voltage free
- The 4 inputs can be configured as contact or counter
- LED indication for power supply, Dupline® bus, input activated
- Connection to other cabinet modules via local bus

#### MAIN FEATURES

- Dimensions: 2-DIN modules
- DC power supply

### Output modules solid state relay



#### SH2SSTRI424

- 4 triac output
- Module load: 4 x 10 W
- LED-indications for supply, bus and outputs status
- Connection to other cabinet modules via local bus
- Push button for local on/off switching

#### MAIN FEATURES

- Dimensions: 2-DIN modules
- DC power supply

### Relay modules



#### SH2RE16A4

- 4 separate outputs relay
- LED-indications for supply, bus and outputs status
- Connection to other cabinet modules via local bus
- Push button for local on/off switching

#### MAIN FEATURES

- Dimensions: 2-DIN modules
- Bus supplied

### Relay modules with energy metering



#### SH2RE16A2E230

- 2 outputs relay
- Power and energy metering
- LED-indications for supply, bus and outputs status
- Connection to other cabinet modules via local bus
- Push button for local on/off switching

#### MAIN FEATURES

- Dimensions: 2-DIN modules
- 230 V supplied

# Our product range

## Decentral output modules


**BDA-RE13A-U**

- Small sized single relay output
- Load: 16 A/250 VAC
- Withstands 130 A inrush current

**MAIN FEATURES**

- Bus powered

## Up/down control for DC motor


**SHDRODC230**

- AC powered small dimension 2 x 5 A relay output for control of roller blind motor
- Relay interlock function for roller blind motor protection
- cUL approved

**MAIN FEATURES**

- Design for mounting in eurobox
- Relay load 5 A

## Up/down control for AC motor


**SH2ROAC224**

- Up/down control of 2 AC rollerblind motors
- LED indication for power supply, Dupline® bus, motor up, motor down
- Connection to other cabinet modules via local bus
- Push button for local on/off switching

**MAIN FEATURES**

- Dimensions: 2-DIN modules
- DC power supply

## Dimmer modules up to 500 W


**SH2D500W1230**

- Universal dimmer switch for R, L, C up to 500 W and LED loads
- Integrated heat sink for temperature dissipation
- Automatic load detection for L, R, C load
- Connection to other cabinet modules via local bus
- Push button for local on/off switching

**MAIN FEATURES**

- Dimensions: 2-DIN modules
- 230 V supplied

## Dimmer modules 1-10 V


**SH2D10V424**

- Switching and dimming adjustable ballasts 1 to 10 V
- 4 independent dimmable outputs
- LED-indications for supply, bus and outputs status
- Connection to other cabinet modules via local bus
- Push button for local on/off switching

**MAIN FEATURES**

- Dimensions: 2-DIN modules
- DC power supply

## Dimmer modules with energy metering


**SH2D500WE230**

- Universal dimmer switch for R, L, C up to 500 W and LED loads
- Integrated heat sink for temperature dissipation
- Energy metering
- Connection to other cabinet modules via local bus
- Push button for local on/off switching

**MAIN FEATURES**

- Dimensions: 2-DIN modules
- 230 V supplied

## Analogue input modules


**SHPINA224 / SHPINV324  
SHPINV2T1P124**

- Ranges: 0-10V, 0-20 mA, 4-20 mA
- 24 VDC powered
- Small dimension

**MAIN FEATURES**

- Small dimension makes it easy to install decentrally
- SHPINV324: 3 x 0-10V inputs
- SHPINA224: 2 x 0-20 mA / 4-20 mA inputs (configurable)
- SHPINV2T1P124: 2 x 0-10V + 1 x 10K3 + 1 x 1-11K inputs

## Temperature resistor input modules


**SHPINNI2  
SHPINT1P1**

- Ranges: Pt1000, Ni1000, 10K3 thermistor, 1-11 K potentiometer
- Bus-powered
- Small dimension

**MAIN FEATURES**

- Small dimension makes it easy to install with existing meters
- Buspowered, so no local power supply needed
- Option for count reset via Smart Dupline®

# Building Automation

## Our product range

### Pulse counter modules



#### SHPINCNT4 SHPINCNTS04

- Pulse counter module with 4 inputs
- Available with standard S04 inputs and low current inputs
- The count values are stored in non-volatile memory on board
- Input count frequency up to 100 Hz
- Inputs can also be used as digital contact inputs

#### MAIN FEATURES

- Small dimension makes it easy to install with existing meters
- Buspowered, so no local power supply needed
- Option for count reset via Smart Dupline®

### Analogue output modules



#### SHPOUTV224

- Output modules with two 0-10 V outputs
- Small dimensions for decentralised installations

#### MAIN FEATURES

- DC power supply

### Voltage input modules



#### BDA-INVOL-U

- Input voltage module for building automation
- 1 opto-isolated voltage input 90-265 VAC

#### MAIN FEATURES

- Compact housing
- Bus powered

### Light switch interfaces



#### BDB-INCONx-U BDB-IOCP8x-U

- Small-sized 4 or 8 I/O modules
- 4 or 8 contact inputs for push buttons

#### MAIN FEATURES

- Compact housing
- Bus powered

### Light switches



#### B4X-LS4-U B5X-LS4-U

- 4 individually programmable push button inputs
- 4 individually programmable LEDs for true response
- Bus powered, no external supply required

#### MAIN FEATURES

- B4X-LS4-U: Developed to fit into wall socket and frames from Fuga, NIKO and Bticino
- B5X-LS4-U: Developed to fit into wall socket and frames from Elko, Gira and Jung

### Light switch + temperature and humidity sensor



#### SHA4XLS4TH SHE5XLS4TH

- 4 individually programmable push button
- Integrated temperature and humidity sensor
- Temperature range: -40° to 60°C
- Humidity range: 5 to 95 %

#### MAIN FEATURES

- SHA4XLS4TH: Developed to fit into wall socket and frames from Fuga, NIKO and Bticino
- SHE5XLS4TH: Developed to fit into wall socket and frames from Elko, Gira and Jung

### Temperature displays



#### SHA4XTEMDIS SHE5XTEMDIS

- Temperature controller with display
- Shows current room, outdoor and auxiliary temperature
- Turns on/off heating and cooling
- Energy Save through 3 different setpoints: comfort, activity, economy

#### MAIN FEATURES

- Bus powered
- SHA: Developed to fit into wall socket from Fuga, NIKO and Bticino
- SHE: Developed to fit into wall socket from Elko, Gira and Jung

### 90° PIR + Lux meters



#### SHA4XP90L SHE5XP90L

- Passive infrared detector (PIR)
- Detects movement and presence
- Indoor and outdoor applications
- Operating angle: 90°
- Lighting measuring range: 0 to 20 K lux

#### MAIN FEATURES

- Bus powered
- Walk test: LED indication
- Programmable sensitivity



## Our product range

**150° PIR +  
Lux meters**



**SH..XP150/150L**

- Passive infrared detector (PIR)
- Detects movement and presence
- Indoor and outdoor applications
- Operating angle: 150°
- Lighting measuring range: 0 to 20 K lux

### MAIN FEATURES

- Bus powered
- Walk test: LED indication
- Programmable sensitivity

**90° PIR +  
Lux meters**



**SHSDP90L / SHSBP90L  
SHSPP90L**

- Passive infrared detector (PIR)
- Detects movement and presence
- Indoor and outdoor applications
- Operating angle: 90°
- Lighting measuring range: 0 to 20 K lux

### MAIN FEATURES

- Bus powered
- Walk test: LED indication
- Programmable sensitivity

**360° PIR +  
Lux meters**



**SHSQP360L**

- Passive infrared detector (PIR)
- Detects movement and presence
- Indoor and outdoor applications
- Operating angle: 360°
- Lighting measuring range: 0 to 20 K lux

### MAIN FEATURES

- Bus powered
- Walk test: LED indication
- Programmable sensitivity

**Dupline® fire damper  
I/O modules**



**SBB4I2O24  
SBB4I2O230**

- Robust I/O-module for decentralised installation near fire dampers
- Designed to control two fire dampers
- 4 contact inputs (voltage-free)
- 2 relay outputs (230 VAC/3 A)
- 24 VAC or 230 VAC power supply

### MAIN FEATURES

- Box for decentralised mounting near or directly on fire dampers
- Easy wiring of the system
- Cost-effective design

**Touch screen/  
data logger**



**BTM-T4-24  
BTM-T7-24**

- 4" / 7" colour display
- Easy setup of graphic pages and functions with the powerful software Wizard
- Activation of internet links through touch buttons
- Support viewing from IP cameras

### MAIN FEATURES

- Ethernet connection
- Wide screen display, 64 K colours
- USB port, SD memory, Modbus RTU serial port

**Weather  
station**



**SHOWEAGPS**

- Light, wind, temperature measurement
- Ranges: 0 to 100K lux, 0 to 35 m/s, -40° to 80°C
- Rain sensor included

### MAIN FEATURES

- Integrated GPS receiver
- Modbus RS485 protocol

**Lux meters for  
outdoor installation**



**BSH-LUX-U**

- Lighting measuring range: 0 to 20K lux
- For indoor and outdoor installation
- Working temperature: -30° to +60°C

### MAIN FEATURES

- Easily mountable
- Bus powered

**Outdoor  
temperature sensors**



**BSI-TEMANA-x-U**

- Temperature range: -40° to +60°C
- BSI-TEMANA-U is delivered with a M12 plug
- BSI-TEMANAB-U is delivered with 2 m cable

### MAIN FEATURES

- Easily mountable
- Bus powered

# Building Automation

## Our product range

### Wireless bus generators



**SH2WBU230N**

- Wireless transmission based on IEE 802.15.4, @ 2.4 GHz
- Maximum slave number: 250
- Up to 7 SH2WBU230N can be connected on the same network
- Connection to SH2WEB24 via internal bus or terminals via the high speed bus

#### MAIN FEATURES

- Dimensions: 2-DIN modules
- DC power supply

### Wireless light switches



**SHE5XWLS4xFx**

- Flat design: can be mounted everywhere
- 4 individually programmable push buttons
- Battery supplied
- Range up to 100m open space

#### MAIN FEATURES

- Temperature sensor
- It can be mounted in many 55x55 frames (see datasheet)

### Wireless relays with energy metering



**SHJWRE10AE230  
SHJWRE10AE115**

- Smallest housing in the market
- Wireless transmission based on IEE802.15.4 @ 2.4
- Range up to 700 m in open air
- Load: 10 A/250 VAC

#### MAIN FEATURES

- Energy metering
- Programmable routing function in two steps
- Mounting into eurobox

### Wireless relays with push buttons



**SHJWRE10AEWLS230  
SHJWRE10AEBLS230**

- Two capacitive push buttons
- Wireless transmission based on IEE802.15.4 @ 2.4
- Range up to 700 m in open air
- Load: 10 A/250 VAC

#### MAIN FEATURES

- Energy metering
- Programmable routing function in two steps
- To substitute Bticino switches

### Wireless dimmer with energy metering



**SHJWD200WE230  
SHJWD200WE115**

- Smallest housing in the market
- Wireless transmission based on IEE802.15.4 @ 2.4
- Range up to 700 m in open air
- Universal dimmer switch for R, L, C up to 200 W and LED loads

#### MAIN FEATURES

- Energy metering
- Programmable routing function in two steps
- Mounting into eurobox

### Wireless dimmer with push buttons



**SHJWD200WEWLS230  
SHJWD200WEBLS230**

- Two capacitive push buttons
- Wireless transmission based on IEE802.15.4 @ 2.4
- Range up to 700 m in open air
- Universal dimmer switch for R, L, C up to 200 W and LED loads

#### MAIN FEATURES

- Energy metering
- Programmable routing function in two steps
- To substitute Bticino switches

### Wireless energy meters



**SHJWEM16A230  
SHJWEM16A115**

- Smallest housing in the market
- Wireless transmission based on IEE802.15.4 @ 2.4
- Range up to 700 m in open air
- Energy measurement: kWh
- Instantaneous variables readout: A, V, W, Wdmd, VA,

#### MAIN FEATURES

- Programmable routing function in two steps
- Mounting into eurobox

### USB dongle modem accessories



**SH2DSP24**

- USB port to supply dongle modem HUAWEI MS2131 DLINK DWM 157"
- Support for wi-fi USB key
- Watchdog features to prevent common mobile network hassles

#### MAIN FEATURES

- Dimensions: 2-DIN modules
- 24 VDC supplied

# Our product range

Environmental sensors	Environmental sensors	Environmental sensors	Environmental sensors
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### ESCO2THWxVDM

- Wall mounting
- CO<sub>2</sub> 2000 ppm or 5000 ppm
- 0 to 50°C, 0 to 100% RH
- LCD display
- Modbus communication and analog output



### ESTHW50x

- Wall mounting
- Temperature and humidity 2 in 1
- 0 to 50°C, 0 to 95% RH
- 0 to 10 V or 4-20 mA output
- Dimensions 85x85x30 mm only



### ESTHD50xM

- Duct mounting
- Temperature and humidity 2 in 1
- -40 to 100°C, 0 to 100% RH
- 0 to 10V or 4-20mA output
- Modbus communication and analog output



### ESCO

- Wall or duct mounting
- CO 300 ppm or 500 ppm
- High accuracy CO electrochemistry sensor
- 0 to 10V or 4-20mA output
- Modbus communication and analog output

#### MAIN FEATURES

- Compact housing measuring 3 parameters
- Software for easy setting and monitoring
- Ideal for building installation

#### MAIN FEATURES

- Compact housing measuring 2 parameters
- Simple to install and use
- Ideal for building installation

#### MAIN FEATURES

- Compact housing measuring 2 parameters
- Ideal for HVAC duct installation
- Software for easy setting and monitoring
- Temperature and dew point version also available

#### MAIN FEATURES

- Compact housing with electrochemistry sensor
- CO sensor ideal for car park installations
- Software for easy setting and monitoring

Environmental sensors	Carpark bus generator	Carpark controller	Carpark server
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### SHSU....D SHSU....L SHSU....

- Room sensors for CO<sub>2</sub>, temperature and humidity measurement
- Available with display, RGB LED or neutral
- Temperature range: -20°C to +50°C
- Humidity range: 0 to 100 %RH
- CO<sub>2</sub> range: 0 to 2000 ppm

#### MAIN FEATURES

- Easily mountable
- Bus powered
- Low current consumption



### SBP2MCG324

- Generator of power and Dupline® bus communication on 3 wire
- Connected as a slave to the Carpark controller SBP2WEB24
- Connects up to 90 Carpark sensors via Dupline® 3-wire bus
- Powered from 28 VDC
- Dimensions: 2-DIN module

#### MAIN FEATURES

- Provides sensors and indicators with power and communication
- Provides power and communication for up to 90 ultrasonic sensors
- Compact DIN-rail housing



### SBP2WEB24

- Parking guidance, carpark management and smart building controls in one unit
- Seamless integration with BMS through BACnet/IP
- Built-in webserver with user interface for carpark management software
- Powered from 24 VDC
- Dimension: 2-DIN module

#### MAIN FEATURES

- Integrated parking guidance, carpark management and energy savings
- Easy and fast commissioning through central PC-based tool



### SBP2CPY24

- Carpark server with capability of linking up to 10 SBP2WEB24 together
- Built-in webserver with user interface for carpark management software
- Data export in excel format
- Powered from 24 VDC
- Dimension: 2-DIN module

#### MAIN FEATURES

- Enables parking guidance solutions for very large carparks
- Built-in webserver with user interface for carpark management software
- Easy and fast commissioning through central PC-based tool

# Building Automation

## Our product range

### 45° ultrasonic sensors



#### SBPSUSL45

- Ultrasonic sensor with 45° detection angle
- Built-in bright RGB LEDs with 360° indication
- Base holders for cable tray, ceiling and pipe mounting
- Dupline® 3-wire bus-powered
- Dimensions: Ø 116 x 76 mm

#### MAIN FEATURES

- Sensor and indicator in one unit
- Mounting at space entry to achieve optimum visibility
- Highbright multi-colour RGB LED's

### Vertical ultrasonic sensors



#### SBPSUSL

- Vertical sensor to be mounted directly above the car
- Built-in bright RGB LEDs with 360° indication
- Base holders for cable tray, ceiling and pipe mounting
- Dupline® 3-wire bus-powered
- Dimensions: Ø 116 x 76 mm

#### MAIN FEATURES

- Wide tolerance for mounting position
- Mounting on cable tray, ceiling or pipe
- Operates with external RGB LED indicator

### Vertical ultrasonic counting sensors



#### SBPSUSCNT

- Vertical sensor to be mounted in the driving lane for counting
- Fast reaction time to detect moving cars up to 20 km/h
- Base holders for cable tray, ceiling and pipe mounting
- Dupline® 3-wire bus-powered
- Dimensions: Ø 116 x 76 mm

#### MAIN FEATURES

- Detection of moving cars up to 20 km/h speed
- Mounting on cable tray, ceiling or pipe
- Easy installation and commissioning

### 360° LED indicators



#### SBPILED

- LED indicator to be mounted outside the parking space
- Multi-colour bright RGB LEDs with 360° indication
- Base holders for cable tray, ceiling and pipe mounting
- Dupline® 3-wire bus-powered
- Dimensions: Ø 116 x 76 mm

#### MAIN FEATURES

- High visibility of bright multi-colour RGB LED's
- 360° visibility
- Mounting on cable tray, ceiling or pipe

### Sensors base holders



#### SBPBASEA / SBPBASEB

- Base holders for Carpark sensors and LED indicators
- To be mounted on rail, ceiling or pipe/tube/conduit
- Dimensions: Ø 116 x 24 mm (type A) / Ø 116 x 44 mm (Type B)
- Wire terminals built into base holder for easy change of sensor
- On-board address chip with SIN code

#### MAIN FEATURES

- Flexible mounting options for rail, ceiling or pipe/tube/conduit
- Spring terminals and chip with SIN-address integrated
- Rugged and robust housing

### Carpark display adapter



#### SBP2DI48524

- Dupline® bus to Modbus RS485 display adapter
- LEDs for indication of communication status
- Powered from 24 VDC
- Dimension: 2-DIN module

#### MAIN FEATURES

- Provides signal conversion between the Dupline® bus and the Modbus display
- Compact 2-DIN housing suitable for decentral installation
- Easy and fast commissioning through central PC-based tool

### Carpark displays with symbols+digits



#### SBPDISxxxx

- Displays with green arrow/red cross for guiding the drivers
- Available with 0-3 digits for vacant space number indication
- Optional blue sign for disabled parking
- Automatic brightness control for high visibility
- Powered from 24 VDC

#### MAIN FEATURES

- High visibility from more than 50m of distance
- Automatic adjustment of brightness according to surroundings lux level
- Indoor and outdoor use

### Carpark displays with digits



#### SBPDISx

- Displays with 2 to 4 digits to show number of vacant spaces for an area
- Bright white LED digits
- Same display for indoor/outdoor
- Automatic brightness control for high visibility
- Powered from 24 VDC

#### MAIN FEATURES

- High visibility from more than 50 m of distance
- Automatic adjustment of brightness according to surroundings lux level
- Indoor and outdoor use

# Our product range

## Carpark displays with digits



### SBPDIS9

- Display with 9 character matrix with clear white LEDs
- Automatic brightness control for high visibility
- Dimensions: 215 x 950 x 45 mm
- Powered from 24 VDC

#### MAIN FEATURES

- Combines text and digits
- High visibility from more than 50 m of distance
- Automatic adjustment of brightness according to surroundings lux level
- Indoor and outdoor use

## Pulse counter with wireless MBUS output



### SIU-MBC-XX

- Dimensions 105 x 27 x 60 mm DIN-rail housing
- Pulse counter (2 pulse inputs)
- Wireless MBUS output
- Battery power supply
- Indoor or outdoor installation (IP67)

#### MAIN FEATURES

- 12 years battery lifetime
- Compatible with SIU-MBM-02 concentrator
- Wireless MBUS T1 mode, 868 MHz

## MBUS concentrator



### SIU-MBM-01

- Dimensions 95 x 71 x 60 mm DIN-rail housing
- MBUS input
- MODBUS TCP/IP output
- Power supply from 15 to 21 VAC, from 18 to 35 VDC
- Ethernet port

#### MAIN FEATURES

- Up to 20 MBUS connectable devices
- MBUS network scan feature
- Set-up by UCS software

## MBUS and wireless MBUS concentrator



### SIU-MBM-02

- Dimensions 95 x 71 x 60 mm DIN-rail housing
- MBUS and wireless MBUS input
- MODBUS TCP/IP output
- Power supply from 15 to 21 VAC, from 18 to 35 VDC
- Ethernet port

#### MAIN FEATURES

- Up to 20 MBUS and 32 wireless MBUS connectable devices
- MBUS and wireless MBUS network scan feature
- Set-up by UCS software

## Web server and data logger



### VMU-C EM

- Micro PC with Web-server and Web service capability
- Data and event logging capability
- Internal 4GB memory and 16GB SDHC card back-up memory
- Variables shown as graphs and numbers in formatted tables
- All data exports on HTML format compatible with Excel or other spread sheets
- Management up to 32 energy meters and 11 remote I/O module groups

#### MAIN FEATURES

- Energy analysis of each single load
- Energy bill evaluation
- Virtual main meter
- Alarms control with automatic e-mailing and SMS management

## USB dongle connection modules



### VMU-D

- 2 DIN modules
- Compatible with Carlo Gavazzi approved 3G/4G USB modems
- Power supply: 24 VDC (+/- 20%)
- Suitable for use with VMU-C and VMU-Y

#### MAIN FEATURES

- 3G or 4G Mobile Internet connectivity
- SMS alerting
- SMS commands

## Cloud multi-site aggregation server



### Em²-Server

- Software for energy data management
- Multi-site monitoring management
- Flexible and scalable architecture
- VMware® technology compatibility

#### MAIN FEATURES

- Load profile management
- Data analysis and benchmark
- Data and event logging
- Customizable graphical synoptic
- All data exported in format compatible with Excel or other spread sheets
- Tariffs and contract management
- Alarms management
- Database replication from up to 100 VMU-C EM

## Power transducers



### CPT DIN

- Dimensions: 83.5 x 45 x 98.5 mm DIN rail housing
- Accuracy 0.5 % (voltage, current)
- Measurement by CT and VT
- Front protection degree IP20
- Analogue, digital, pulse or serial outputs available

#### MAIN FEATURES

- Very compact size power transducer
- Provides electrical variables set to a PLC to manage compressors and other loads
- Suitable for on-board panel installation

# Building Automation

## Our product range

### 1-phase energy meters up to 45A



#### EM110

- 1 DIN module
- Electromechanical totalizer
- Bi-directional energy metering, 7 digits cl. B (EN50470)
- Measuring inputs: 115/230 VAC, 45A

#### MAIN FEATURES

- Self-powered
- Pulse output
- Sealable terminal covers
- CE, MID (PFB)

### 1-phase energy analyzers up to 45A



#### EM111

- 1 DIN module
- Backlit touch LCD
- Measurement of voltage, current, power, power factor and frequency
- Bi-directional energy metering, 7 digits cl. B (EN50470)
- Measuring inputs: 115/230 VAC, 45A

#### MAIN FEATURES

- Self-powered
- Dual tariff management
- Pulse output or RS485 Modbus or M-Bus port
- Sealable terminal covers
- CE, MID (PFA and PFB)

### 1-phase energy analyzers up to 100A



#### EM112

- 2 DIN modules
- Backlit touch LCD
- Display backup by supercapacitor
- Measurement of voltage, current, power, power factor and frequency
- Bi-directional energy metering, 8 digits, cl. B (EN50470)
- Measuring inputs: 115/230 VAC, 100 A

#### MAIN FEATURES

- Self-powered
- Dual tariff management
- Pulse output or RS485 Modbus or M-Bus port
- Sealable terminal covers
- CE, MID (PFA and PFB)

### 3-phase energy analyzers for direct current up to 65A



#### EM330 / EM340

- 3 DIN modules
- Backlit touch LCD
- Measurement of voltage, current, power, power factor and frequency
- Bi-directional energy metering, 3x 8-digit, cl. B (EN50470)
- Measuring inputs: 230 to 400 VLL AC, 5 A (EM330) 65 A (EM340)

#### MAIN FEATURES

- Self-powered (EM340)
- 90 - 260 VAC/DC (EM330)
- Dual tariff management
- Pulse output or RS485 Modbus or M-Bus port
- Sealable terminal covers
- CE, MID (PFA and PFB), cULus (EM330)

### 3-phase energy analyzers for 5A, CTV or ROG4K



#### EM210

- 4 DIN modules or 72 x 72 mm
- LCD with two installation options
- Measurement of voltage, current, power, power factor and frequency
- Bi-directional energy metering, 3 x 3-digit or 8-digit readout, cl. B (EN50470)
- Voltage inputs: 3x230(400) VAC; Current inputs: 5 A CT (AV version); miniature CTV or Rogowski ROG4K sensors (MV version)

#### MAIN FEATURES

- Self-power supply (230-400V aux power supply in MID version)
- Pulse output and optionally: RS485 Modbus RTU, high speed (up to 115 kbps)
- Sealable terminal covers
- CE, cULus, MID (only 5A, aux power supply version)

### 3-phase energy analyzers



#### EM24 DIN

- 4 DIN modules
- 3-phase energy meters with direct connection
- Current input up to 65 A or 5 A
- Class B (kWh) acc. to EN50470
- Pulse open collector output
- Modbus RTU or Ethernet, M-bus or Dupline® port

#### MAIN FEATURES

- Direct measurement in a very compact housing to save space
- Suitable for measuring generated and consumed energy
- CE, MID, cULus (only EM24 5A)

### 3-phase energy analyzers



#### EM26 96

- 96 x 96 mm housing, only 45 mm behind the panel
- 3-phase energy meters with CT/VT connection
- Primary current input: 5 A
- Class B (kWh) acc. to EN50470
- Pulse/alarm outputs
- Modbus communication port

#### MAIN FEATURES

- Energy analyzer in a very compact housing to save space
- Suitable to measure generated and consumed energy
- CE, MID, cULus

### 3-phase power analyzers



#### WM20

- 96 x 96 mm panel mounting housing
- Accuracy 0.2 % (voltage, current)
- Class 0.5S (kWh)
- Universal power supply
- Front protection degree IP65, NEMA4X, NEMA12
- cULus approved

#### MAIN FEATURES

- Provides installation data to a SCADA to manage the whole system
- Modular housing to build the instrument according to the real application needs
- Modbus, Ethernet, Profibus, BACnet (IP and MS/TP) communication ports

# Our product range

## 3-phase power quality analyzers



### WM30 / WM40

- 96 x 96 mm panel mounting housing
- Accuracy 0.2% (voltage, current)
- Class 0.5S (kWh)
- Universal power supply
- Front protection degree IP65, NEMA4X, NEMA12
- Optional analogue and digital outputs
- Optional analogue and digital inputs (WM40)
- cULus approved

#### MAIN FEATURES

- Built-in datalogger for instantaneous variables, dmd profiles and events (WM40)
- Modular housing to build the instrument according to the real application needs
- Modbus and BACnet (both RS485 or Ethernet), Profibus DPV0, and EtherNet/IP communication port available

## 2x3-phase energy analyzer for MCCBs



### EM270 + TCD X

- 4 DIN modules or 72 x 72 mm
- Triple 3-phase energy meter
- Current measurement by triple CT solid core with RJ plug
- Equivalent to class 1 (kWh)
- Two pulse open collectors and serial
- RS485 outputs

#### MAIN FEATURES

- Save 90% of the installation time
- Voltage and serial bus daisy chain installation
- Fast and error-proof CT connection with CT ratio self-recognising

## 2x3-phase energy analyzer for MCBs



### EM280 + TCD06BX/BS

- 4 DIN modules or 72 x 72 mm
- 6-channel energy meter
- Current measurement by 6-channel CT blocks with RJ plugs: solid core (TCD06BX)
- Equivalent to class 1 (kWh)
- Two pulse open collectors and serial
- RS485 outputs

#### MAIN FEATURES

- Branch monitoring in new and retrofit applications, saving 90% of the installation time
- Voltage and serial bus daisy chain installation
- Fast and error-proof CT connection with CT ratio self-recognising

## Universal 2x3-phase energy analyzer



### EM271 + TCD M

- 4 DIN modules or 72 x 72 mm
- Triple 3-phase energy meter for retrofit
- Current measurement by triple CT split-core with RJ plug
- Equivalent to class 1 (kWh)
- Two pulse open collectors and serial
- RS485 outputs

#### MAIN FEATURES

- Save 90% of the installation time
- Voltage and serial bus daisy chain installation
- Fast and error-proof CT connection with CT ratio self-recognising

## Current transformers



### CTD / TADK

- CTD: currents from 40 to 4000 A
- TADK2: 1-250 A
- Removable panel fixing clips
- DIN-rail and panel mounting facility (TAD...)
- Double screw terminals (CTD)
- Sealable covers
- Case: ABS, self-extinguishing level UL 94 V-0
- Accuracy class: 0.5

#### MAIN FEATURES

- Wound primary / solid core or split-core
- Compliance with IEC 60185, VDE 0414-1 regulations
- Removable DIN-rail mounting holder

## Current sensors



### CTV

- Split-core current sensors
- Primary currents: 60 to 800 A
- Secondary output: 0.333V AC
- Accuracy class: 1
- CE, cURus approved

#### MAIN FEATURES

- Very compact split-core sensors ideal for retrofit applications
- Suitable for use with EM210 MV energy analyzer

## Rogowski current sensors



### ROG4K

- Rogowski coil current sensor
- Primary current up to 4000 A
- Direct connection of the secondary terminals to the meter
- Accuracy class: 1
- CE, cURus approved

#### MAIN FEATURES

- Ideal for retrofit applications
- Suitable for use with EM210 MV energy analyzer
- Signal conditioning carried out by the meter
- No need of external power supply

## AC Current transformers



### E83

- Dimensions: 56 x 22.5 x 49 mm
- 7 input ranges from 5 A to 50 A AC
- Output 4-20 mA DC
- No power supply
- CE, cURus approved

#### MAIN FEATURES

- Easy PLC interfacing
- Automatic output scaling
- LED indication

# Building Automation

## Our product range

### Current monitoring relays



#### DIA53

- Dimensions: 81 x 17.5 x 67.2 mm DIN-rail housing with 12 mm hole for current measurement
- Current monitoring relay with built-in current transformer
- 20 A, 50 A or 100 A AC
- Self powered
- CE, cULus, CSA

#### MAIN FEATURES

- Only 2 wires connection
- Adjustable current tripping setpoint
- Integrated solid state NPN PNP output

### 3-phase monitoring relays



#### DPA52

- Dimensions: 81 x 17.5 x 67.2 mm DIN-rail housing
- Phase sequence and phase loss, regenerated V detection
- 3 phase AC (own power supply)
- Power supply from 125 to 624 VAC (rated 208 to 480 VAC)
- UL, CSA and CCC

#### MAIN FEATURES

- Motors protection from reverse running and phase loss
- 1 DIN module width. Suitable NORM panels
- Switching power supply 2.5 VA

### 3-phase monitoring relays



#### DPB52

- Dimensions: 81 x 17.5 x 67.2 mm DIN-rail housing
- Phase sequence and phase loss, regenerated V detection
- 3 phase AC (own power supply)
- Power supply from 125 to 624 VAC (rated 208 to 480 VAC)
- UL, CSA and CCC

#### MAIN FEATURES

- Overvoltage / undervoltage setting with Alarm ON delay
- 1 DIN module width. Suitable NORM panels
- Switching power supply 2.5 VA

### Current monitoring relays



#### DIA01

- Dimensions: 80 x 22.5 x 99.5 mm DIN-rail housing
- Current measurement by internal shunts or external CT
- 5 A full scale
- 24/48 VAC/DC or 115/230 VAC
- UL, CSA, CCC

#### MAIN FEATURES

- Latch and adjustable hysteresis
- Adjustable current tripping setpoint
- 8 A SPDT relay output

### 3-phase surge protection devices



#### DSF A/P

- Suitable for all single phase (A) and three phase (P) utilities
- Available for MCOV 300 V, 385 V, 460 V and 550 V
- 20 kA Inom, 40 kA I<sub>max</sub> per pole
- Din rail mounting socket
- CE, UL and CSA. Category IEC / EN Class II / Type 2

#### MAIN FEATURES

- Optional remote monitoring contact
- Patented topology, no backup fuse required
- Socket with replaceable cartridge

### 3-phase surge protection devices



#### DSB A/P

- Suitable for all single phase (A) and three phase (P) utilities
- Available for 275V, 385V and 440V
- 20kA Inom, 40kA I<sub>max</sub> per pole
- Din rail mounting socket
- CE, Category IEC / EN Class II / Type 2

#### MAIN FEATURES

- Optional remote monitoring contact
- 3 MOVs topology
- Socket with replaceable cartridge

### Dupline® surge protection devices



#### DSB51XXDP

- Dimensions 90 x 12 x 71.5 mm DIN-rail housing
- 15Vdc nominal voltage
- 10kA Inom, 20kA I<sub>max</sub>
- Rated spark overvoltage 184V to 276V
- C1/C2/C3 according to IEC 61643-21

#### MAIN FEATURES

- Designed for Dupline® communication lines
- Three stage topology with dual GDT
- Socket with replaceable cartridge

### Earth leakage protection relays



#### DEA71/DEB71

- 35 mm Mini-DIN housing
- 2 SPDT 5 A relay outputs
- LED leakage Level indicator
- Power supply from 24 V to 240 VAC
- UL and CE (IEC EN 60947-2 Annex M compliant)

#### MAIN FEATURES

- Fixed (DEA71) or Adjustable (DEB71) Trip Current Setting
- Remote Test / Reset push button input
- Warning Indication and output



# Our product range

3-phase scroll compressor soft starters	3-phase scroll compressor soft starters	3-phase pump and ventilator soft starters	3-phase general purpose soft starters
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## RSBT

- Self-learning algorithm for current reduction
- Operational current: 16 A up to 95 A
- 3-phase controlled & internally bypassed
- Operational voltage: 220 - 480 VAC, 50/60 Hz
- cULus, CCC, VDE

### MAIN FEATURES

- Plug and play: no user settings required
- Compact dimensions: 32 A in 45 mm and 95 A in 120 mm wide housing
- Serial communication: Modbus 2-wire (RS485)



## RSBD

- Self-learning algorithm for current reduction and current balancing
- Operational current: 12 A up to 95 A
- Operational voltage: 220 - 600 VAC, 50/60 Hz
- Alarm and top of ramp relay outputs
- cULus, CCC, EAC

### MAIN FEATURES

- Compact dimensions: 45 A in 45 mm and 95 A in 75 mm wide housing
- Plug and play: no user settings required
- Internally Bypassed



## RSWT

- Operational current: 12 A up to 90 A
- 3-phase controlled & internally bypassed
- Ramp-up/Ramp-down time: up to 20 sec
- Operational voltage: 220 - 600 VAC, 50/60 Hz
- PTC input, Alarm - Top of Ramp - Run relay indication
- cULus, CCC, EAC

### MAIN FEATURES

- Easy to use and set up: only 3-user adjustments required
- Self-learning algorithm to improve pump starts/stops
- Integrated overload protection (Class 10)



## RSGD

- Operational voltage range: 187-440 VAC, 187- 660 VAC
- Operational current range: 12 AAC up 100 AAC
- Control voltage: 24 VAC/DC, 110 - 400 VAC
- Auxiliary relays for top of ramp and alarms
- Serial communication (Modbus 2-wire) [RSGD 75mm models]
- cULus, CCC, EAC

### MAIN FEATURES

- Easy to use and set-up
- Self-learning algorithm to adapt to different loads

2-pole solid state relays	1-phase solid state contactors	3-phase solid state contactors	1-phase proportional controllers
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## RK

- Dimensions 45 x 58 x 33 (44) mm, panel mounting
- Independent control (RK2..) or common control (RK2..)
- Ratings: up to 660 VAC, 50 AAC /pole, 75 AAC /pole
- Control input: 4-32 VDC
- CE, cURus, CSA, VDE

### MAIN FEATURES

- Integrated output overvoltage protection
- Pre-attached thermal pad
- Conformant to EN 60335-1



## RGC1A

- Product width 17.5 mm up to 70 mm, DIN mount
- Rated operational voltage: up to 660 VAC
- Rated current: up to 85 AAC @ 40°C
- Control input: 4-32 VDC, 20-275 VAC (24-190 VDC)
- CE, cULus, EAC, VDE, GL (up to 30 AAC)

### MAIN FEATURES

- Integrated heatsink
- 100 kA short circuit current rating
- Optional overtemperature protection



## RGC2A / RGC3A

- Product width 54 mm up to 70 mm, DIN mount
- Rated operational voltage: up to 660 VAC
- Rated current: up to 75 AAC/pole (RGC2A), 65 AAC/pole (RGC3A) @ 40°C
- Control input: 5-32 VDC, 20-275 VAC (24-190 VDC)
- CE, cULus, EAC, CCC

### MAIN FEATURES

- Integrated output overvoltage protection
- Optional monitoring for SSR and load circuit malfunction (RGC..M)
- 100 kA short circuit current rating



## RGS1P / RGC1P

- Product width 35 mm up to 70 mm, DIN or Panel mounting
- Ratings: up to 660VAC, 90AAC, 18000A<sup>2</sup>s
- Control Input: 4-20mA, 0-10 VDC, 0-5 VDC, 1-5 VDC, external potentiometer
- LED indication for control and load status
- CE, EAC, cULus (RGC1P), UR, CSA (RGS1P)

### MAIN FEATURES

- Power control via a selectable switching mode (phase angle, full cycle, advance full cycle or soft start switching)
- Compact dimensions
- Reliability with integrated overvoltage protection

# Building Automation

## Our product range

3-phase proportional controllers	Switching power supplies	Switching power supplies	Switching power supplies
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### RGC2P / RGC3P

- Product width 54 mm up to 70 mm, DIN mount
- Rated operational voltage: 180 - 660 VAC
- Rated current: up to 75 AAC/pole (RGC2P), 65 AAC/pole (RGC3P) @ 40°C
- Control input: 0-20 mA, 4-20 mA, 12-20 mA, 0-10 V, 0-5 V, 1-5 V, external potentiometer
- CE, cULus, EAC, CCC

#### MAIN FEATURES

- Integrated output overvoltage protection
- Phase angle, Distributed full cycle or Soft start as switching modes
- Integrated monitoring for SSR and load circuit malfunction



### SPD

- Output power 5 W to 480 W
- Universal input range of 110-240 VAC or up to 370 VDC
- Short Circuit, overload and overvoltage protection
- PFC > 100 W
- UL1310 Class 2 (up to 90 W)
- cULus, TÜV, CCC, ISA C1D2

#### MAIN FEATURES

- DC OK signal
- Parallel connection
- Screw, spring or detachable terminal connectors



### SPDM

- Output power 30 W to 240 W
- Universal input range of 110-240 VAC or up to 370 VDC
- Short Circuit, overload, overvoltage and over temperature protection
- UL1310 Class 2 (up to 75 W)

#### MAIN FEATURES

- Save up to 20% panel space
- High efficiency and wide operating temperature
- Screw, spring terminal connectors



### SPM

- Output power from 7.5 W to 100 W
- Universal input range of 110-240 VAC or up to 370 VDC
- Short Circuit and overload protection
- DIN Rail housing
- cULus, TÜV, CCC, ISA C1D2

#### MAIN FEATURES

- UL1310 Class 2 (up to <91 W)
- Adjustable output +/- 10%
- Low voltage LED indication

Switching power supplies	Switching power supplies	Industrial relays and sockets
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### SPPC

- Output power from 15 W to 800 W
- Universal input range of 110-240 VAC
- Short Circuit, overload and over voltage protection
- PFC function available >75 W
- UL, CE

#### MAIN FEATURES

- Adjustable output +/- 10%
- Compact dimension
- Wide operating temperature range up to 70°C



### SPUBC/SPUC

- "Power supply, UPS and battery charger "All in one" (SPUBC), UPS controller (SPUC)"
- 12 or 24 VDC 5 A output (up to 30 A SPUC)
- "Power boost up to 2 times rated output, permanent (SPUBC)"
- Built in battery status, complete diagnosis (SPUBC)
- CE, UL

#### MAIN FEATURES

- To be used in addition with 12 or 24 V power supply
- Front 30 A replaceable fuse
- Plug and play: no settings needed



### RSLM

- SPST or SPDT option
- Contact rating for 6 A, 250 VAC/30 VDC
- Coil voltage from 12 VDC to 60 VDC
- Built-in battery diagnosis
- VDE, CQC, cURus, CSA

#### MAIN FEATURES

- 5 mm ultra slim width
- DIN rail mount [ZRLS socket] or PCB mount [ZRLP]
- Surge voltage of up to 6 kV

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