

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

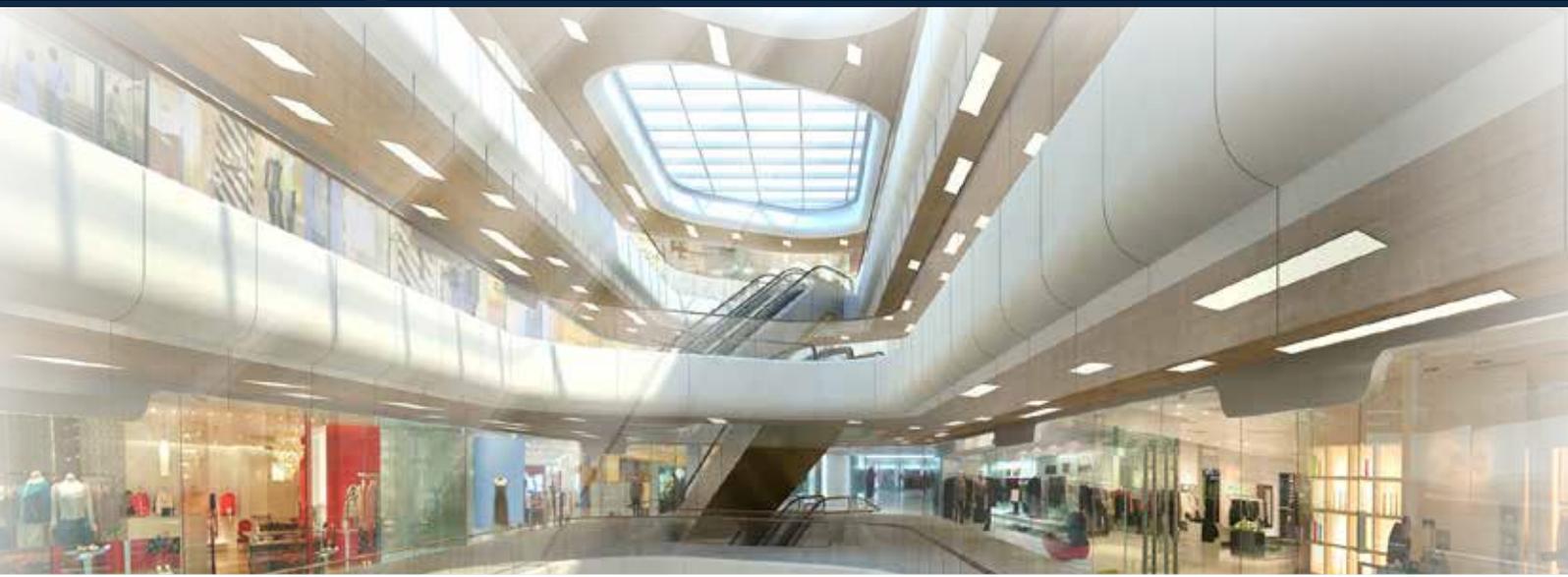
New energy-efficient buildings and the improvement of existing ones are arguably the most important initiatives we can take to reduce energy consumption and limit CO₂ emissions. Energy in these buildings is mainly used for lighting, air-conditioning, ventilation, heating, refrigeration, lifts and motors. 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
WM15
EM340

Power quality analyzers

WM40
WM30
WM20

Current transformers

CTD
TCD
ROG4K

Double 3-phase energy analyzers

EM270
EM271
EM280

Long range wireless gateways

UWP A
UWP M

Gateway and controller

UWP 3.0
Em²-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. The management or the energy service company in residential buildings can negotiate the best tariff by aggregating the whole consumption.

In new buildings a wired M-bus network is dedicated to this purpose, while to retrofit existing buildings the wireless M-bus solution is used: the EM24 meter. With its embedded antenna, this meter allows the remote gathering of the information without the need of invasive work.

Lighting control



Gateway and controller

DALI bus generator

PIR + Lux meters

Light switches

Analogue input modules

Decentral output modules

UWP 3.0

SB2DALI...

SBQP360L...

B..X-LS4...

**BDB-IN...
SHPIN...**

BDA-RE...

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.

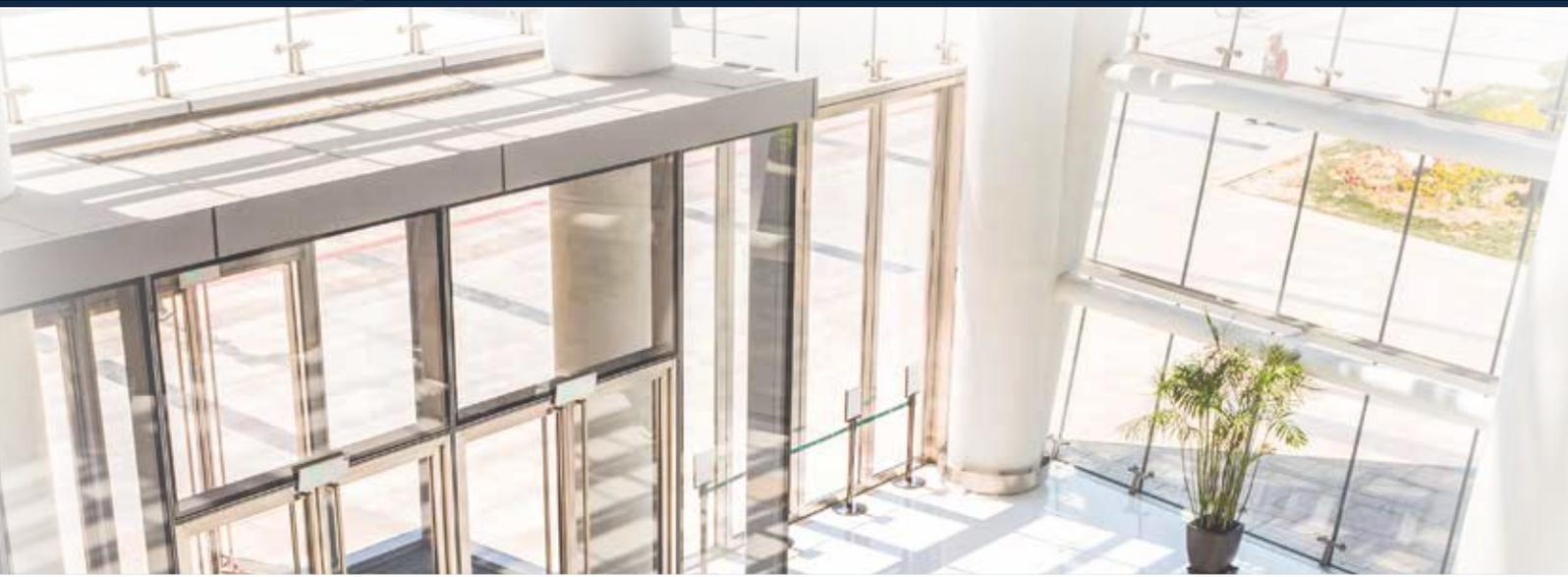
Tunable white DALI control

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 UWP 3.0 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

PIR + Lux meters

SHQP360L...

Solid state relays

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

Monitoring relays

**DPA51
DPA52
DPB52**

Energy meters/analyzers

**WM15
EM110/EM111
EM112/EM210**

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.

The WM15 is a power analyzer, with MID certification, extended to an Aaron connection: this allows a legal measurement of the HVAC plant consumption and, in case of proven savings access to the green/white certificates or incentives.

Integrated solutions



Gateway and controller

UWP 3.0

DALI bus generator

SB2DALI...

PIR + Lux meters

SH...P150L...

Light switches

B..X-LS4...

Environmental sensors

SHSU....

Decentral I/O modules

**SHPIN....
BDB-IN...
BDA-RE...**

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 UWP 3.0 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 UWP 3. provides a range of pre-defined lighting functions, including the much used constant light control.

Building Automation

Parking guidance system



Gateway and controller

45° ultrasonic sensors

360° LED indicator

LoRaWAN and NB-IoT sensors

Videobox

Carpark displays

UWP 3.0

SBPSUS

SBPILED

**SBPWSI1
SBPWSI2**

SBPVBE

DISxRSE

The Carpark system is based on Carlo Gavazzi's expertise in sensing and communications technology within the industrial automation market. It is completely scalable and can be used in any type and size of indoor and outdoor 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 symbols 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. Single bay monitoring of indoor installations is done by ultrasonic sensors. For outdoor on-street and off-street parking, LoRaWAN or NB-IoT wireless sensors are available as an invisible solution, since they are installed underground/embedded. Where drilling is not possible, web cameras can be used: standard IP cameras are connected to the videobox SBP-VBE which processes the images and only sends the occupancy status to the UWP, in full respect of GDPR rules. 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. 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**

Earth leakage protection relays

**DEA71
DEB71**

3-phase monitoring relays

**DPA51
DPA52**

3-phase voltage relays

**DPB51
DPB02**

Current monitoring relays

**DIA53
DIA02**

Building automation systems include a lot of very sensitive loads. Their failure may have consequences to the end user, as loss of comfort, down time, or reduced performances. Monitoring and protection become a prerequisite to reduce them.

In case of incorrect grid, the controller may decide to shut down just the 3-phase loads and leave the rest operational while activating the maintenance team. DPA51 and DPA52 are multivoltage setup free monitoring relays to provide this protection in a minimal space. A subtle failure takes place when neutral connection is lost. This may cause overvoltage on some

1-phase loads, causing appliances failure and potentially fire. DPB51 monitors voltage levels also for phase-neutral, to provide disconnection in such cases.

The loads arrangement may change a lot during the building lifetime. This causes 3-phase voltage imbalance when they aren't evenly loaded. Motors temperature increases and lifetime decreases causing down times and costly maintenance. DPB02 monitors 3-phase voltage asymmetry, i.e. to have the installer on site to re-balance the system if needed.

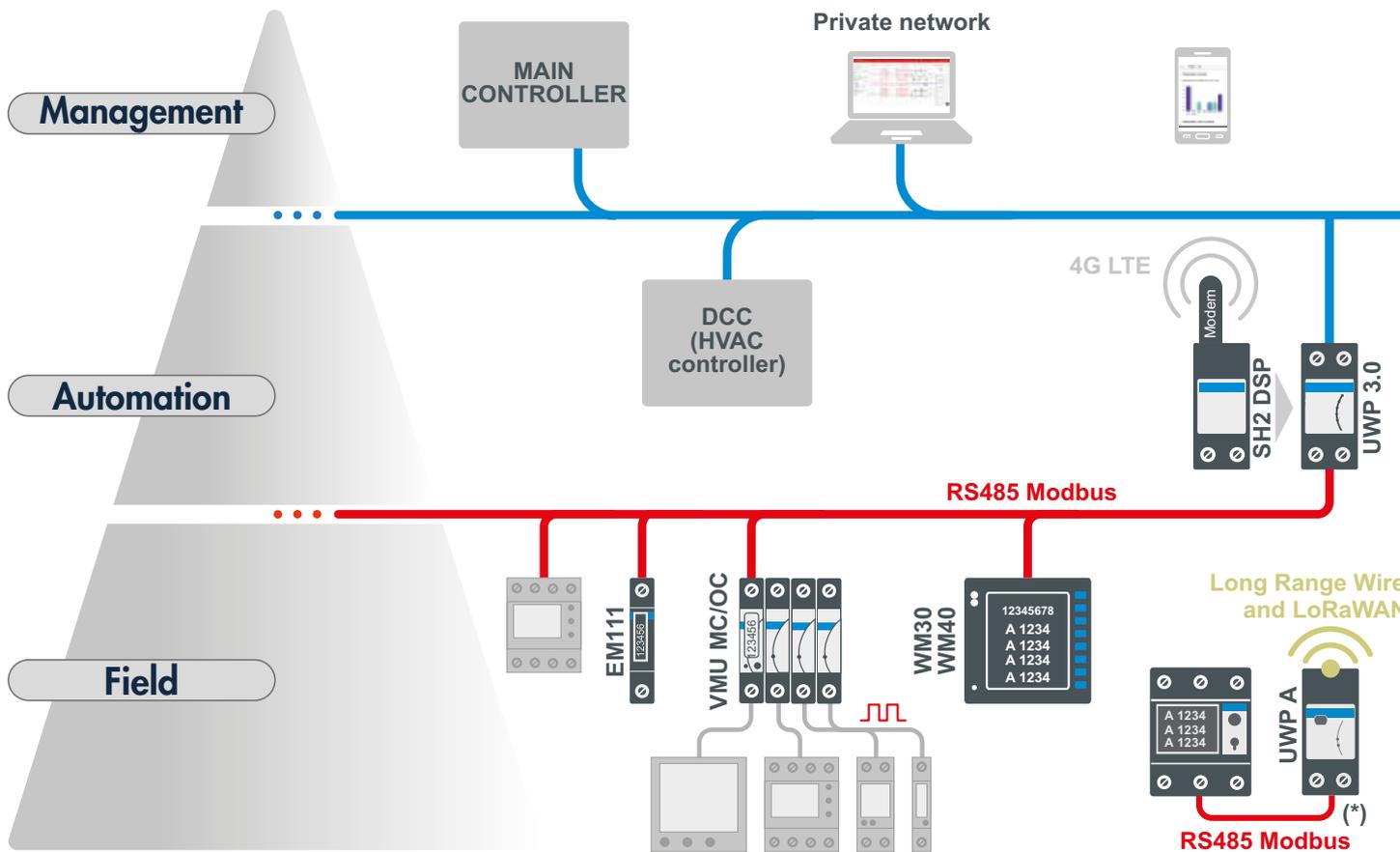
Earth leakage protection is granted by

our Modular Residual Current Devices DEA71 and DEB71. They work with the CTG external core balance transformers and include a pre-alarm output to inform of a potential imminent disconnection.

Investment to know the status of critical loads is worth the benefit of a quick and effective reaction when there is a failure. In water circulation pumps or air extraction fans DIA02 and DIA53 are used to detect the ON/OFF status and react immediately if needed. E83 and A82 provide the motor current value to the controller to detect specific issues, like blocked intake or dry run on pumps.

Building Automation

Energy efficiency and carpark control



The architecture completion

Simplicity, short commissioning time, cost reductions, error proof configuration, expandability and scalability are the key characteristics of UWP 3.0, which make this platform a powerful solution to achieve the Energy Efficiency goals. This means the platform evolves from the pure monitoring introduced in the first part of this solution presentation, to the active control. Although gathering automatically all the meters data is extremely important, this is not enough to achieve the maximum results in terms of energy savings. Therefore, energy efficiency aimed to reduce at maximum the energy costs is the merge of two major actions: monitoring and active load control.

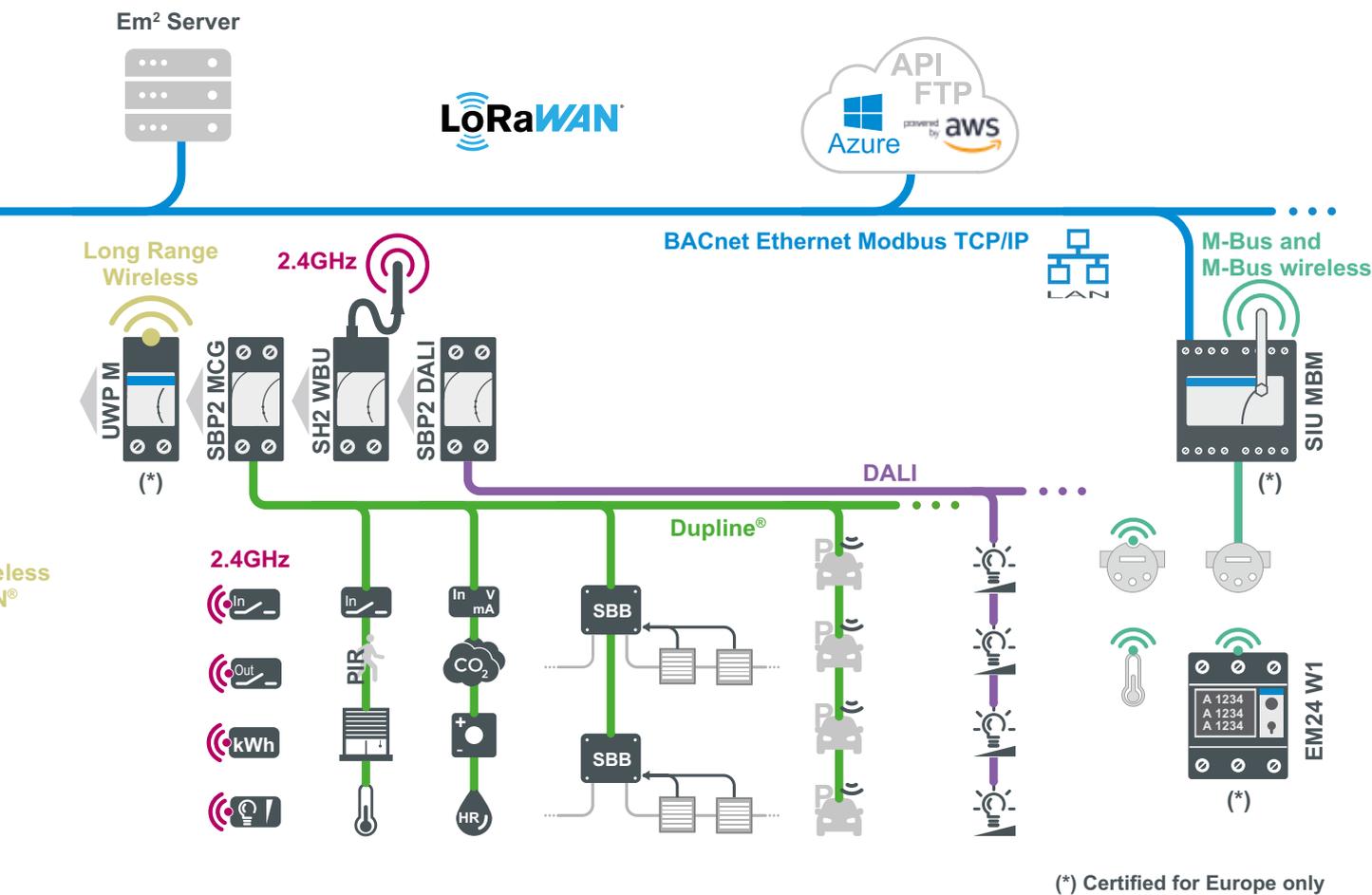
The active control

The active control performed by UWP 3.0 is the capability of this platform to act, at a first level, directly and automatically on the loads but also as a second level to integrate into other management systems.

As a first example, in an industrial plant we can have several buildings like: a production facility with services, offices and a warehouse with different needs in terms of load control and integration. As in the production facility, there are energy intensive loads like: large machines, electric heaters, chillers and air-compressors, all of them have to be monitored and optimised, there is also the need to allocate the energy costs by produced item (see our extensive meter offer).

Energy savings and human efficiency

In the offices there is the need to maximize energy efficiency in relation to the external environmental conditions and people occupancy while providing the highest levels of comfort, safety and quality. Lighting is one of the major areas to focus on, so to reduce electricity costs. A proper controller module based on DALI bus provides a wide range of control strategies to achieve both energy savings and comfort level. Efficiency is not only on energy resources but also on human resources, this means, a modern Company knows that: people engagement, mood and commitment can be easily be boosted up taking care of the work space in terms of CO₂ level (ventilation), temperature (heating and cooling) and illumination (DALI).



From energy efficiency to flow efficiency with the Dupline[®] smart bus

Last but not least, in the warehouse, the energy focus is on lighting as well, but also on both heating and ventilation. A proper management of those loads and the communication by means of BACnet, will integrate UWP 3.0 platform into a BMS so to complete the offer to achieve the energy efficiency goals.

As an additional example, moving from an industrial installation to a shopping mall or an airport, there is the need to different extents, in addition to what already explained above, to implement energy efficiency strategies also in an indoor car-park or multi-storey garage. In this case, as for the people using the offices, the efficiency is not only on load controls like lighting and ventilation (making

sure they are disabled in unoccupied zones), but more actively also on drivers, providing them automated information where to drive and park the car reducing their stress, thus increasing car flow efficiency and reducing the fuel emissions.

Why Dupline[®] proprietary smart bus?

Because among all the platform compatible standard field buses, Dupline[®] in its application context, is the best solution, since it brings numerous benefits like:

- eliminating expensive shielded cable saving money just because it uses a twisted pair (2 wires);
- being extremely noise immune, can run next to power cables;

- carrying the power supply to power the connected sensors;
- simplifying the field level wiring (based on free topology) without increasing the material costs (e.g. using existing cables);
- running the bus signal up to 2km without any repeater;
- being robust with a proven technology with over 150,000 installations Worldwide including not only energy efficiency solutions but also mining, oil drilling, railroads and many others;
- being modular and scalable: the system can be progressively extended with new modules (up to 7) according to the application needs.

Building Automation

Our product range

Monitoring gateway and controller



UWP 3.0

- Micro PC with embedded Web-Server
- Data and event logging from Modbus, Modbus/TCP and Dupline® devices
- Local gateway functions (to BACNet and Modbus/TCP)
- Remote gateway functions (FTP, SFTP, FTPS, Rest-API)
- Microsoft Azure Certified for IoT
- Huge ecosystem of compatible meters, sensors, actuators

MAIN FEATURES

- Flexible control functions
- Energy efficiency monitoring
- Building automation control
- Car parking guidance

Wired bus generator



SH2MCG24

- Connection to UWP 3.0 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



SB2DALI8230

- 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

DALI ballast



SBBADT8CCT

- 2 constant current output channels, total output power up to 50 W
- Output current level selectable from 250 mA to 1500 mA by means of dip switches
- Built-in DALI interface, DT6 and DT8 ballast
- IEC 62386-101, 102, 207 compliance

MAIN FEATURES

- Colour temperature adjustment according to DALI specifications of Device Type 8, Colour Type Tc
- It can work with any DALI master which manages DALI type 8 LEDs

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

Our product range

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

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

Building Automation

Our product range

Temperature resistor input modules



SHPINN12 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®

Pulse counter modules



SHPINCNT4 SHPINCNTS04

- Pulse counter module with 4 inputs
- Available with standard SO4 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

Our product range

**90° PIR +
Lux meters**

**150° PIR +
Lux meters**

**90° PIR +
Lux meters**

**360° PIR
sensors**



**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



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



**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



**SHQP360L7Mxx
SBQP360L24Mxx**

- Passive infrared detector (PIR) and luxmeter
- Operating distance: 14 m (SHQP360L7Mxx)
- Large operating distance: 24 m (SBQP360L24Mxx)
- Detects movement and presence
- Indoor and outdoor installation
- Operating angle: 360°

MAIN FEATURES

- Bus powered
- Programmable sensitivity
- Programmable detection area (SBQP360L24Mxx)

**Dupline® fire damper
I/O modules**

**Weather
station**

**Lux meters for
outdoor installation**

**Outdoor
temperature sensors**



**SBB4I2O230T6
SBB4I2O24T6
SBB4I**

- 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



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



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



BSI-TEMANAx-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 UWP 3.0 via internal bus or terminals via the high speed bus

MAIN FEATURES

- Dimensions: 2-DIN modules
- DC power supply

USB dongle connection modules



SH2DSP24

- USB port to supply dongle modems
- Support for Wi-Fi USB key
- Watchdog features to prevent common mobile network glitches

MAIN FEATURES

- Dimensions: 2-DIN modules
- 24 VDC supplied

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

Our product range

Environmental sensors	Carpark bus generator	Carpark server	Carpark display adapter
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SHSU...D SHSU...L SHSU...

- Room sensors for CO₂, temperature and humidity measurement
- Available with display, RGB LED or neutral
- Temperature range: -20°C to +50°C
- Humidity range: 0 to 100 %RH
- CO₂ 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



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



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

45° ultrasonic sensors	Vertical ultrasonic sensors	Vertical ultrasonic counting sensors	360° LED indicators
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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



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



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



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

Building Automation

Our product range

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 displays



DISARSE / DISRSE / DISCRSE

- Bright RGB LED matrix
- Selectable symbols
- Visible at a distance of more than 50 m
- Brightness control
- Settings are configurable from the embedded webserver

MAIN FEATURES

- Indoor and outdoor use - IP55
- Extended temperature range below -30°C
- Up to 4 digits and 2 symbols and running text

LoRaWAN and NB-IoT sensors



SBPWSI1 / SBPWSI2

- Long life lithium battery. Up to 10 years.
- Wide temperature range. -40°C to +85°C
- Long range communication. Up to 2 Km in urban environment, 500 m in typical applications.

MAIN FEATURES

- Available in different version. Long Range wireless, LoRaWAN® or NB-IoT.
- Easy and invisible installation. Flush mount under the road surface

Outdoor car park concentrator



SBPCWSI124 / SBPCWSI1230

- Long Range wireless communication. 500 m in typical conditions
- Wide range power supply. It works with 24-48 VDC and 100-230 VAC
- It can manage up to 100 SBPWSI1 wireless sensors

MAIN FEATURES

- Flexible installation. It is suitable for wall or pole mounting.
- IP66 rated housing. For indoor and outdoor use

Videobox for camera-based recognition



SBPVBE

- Cameras management. Up to 8 IP cameras. One camera covers an average of 40 parking bays: it depends on the mounting height, positioning and IP cameras specifications.
- Utmost respect for privacy. In accordance with the GDPR: after analysing the images, they are automatically destroyed so that there is no trace of sensitive content.

MAIN FEATURES

- Quick installation. No effect on normal parking activities

Pulse counter with wireless M-Bus output



SIU-MBC-XX

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

MAIN FEATURES

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

M-Bus concentrator



SIU-MBM-01

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

MAIN FEATURES

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

M-Bus and wireless M-Bus concentrator



SIU-MBM-02

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

MAIN FEATURES

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

Our product range

Long range wireless gateways	Long range wireless gateways	Pulse counter concentrator	Pulse counter extension
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UWP A

- 2-DIN module
- Long range wireless, LoRaWAN®
- 868 MHz ISM Band (Europe)
- Power supply 24 VDC, 115-240 VAC
- CE, LoRaWAN Certified™

MAIN FEATURES

- Converts RS485 meters into IoT devices
- Compatible with most Carlo Gavazzi meters and analyzers
- Plug and play commissioning via UCS Software



UWP M

- 2-DIN module
- Long range wireless
- 868 MHz ISM Band (Europe)
- Power supply 24 VDC, 115-240 VAC
- CE

MAIN FEATURES

- Works in combination with the UWP 3.0 monitoring controller
- Compatible with UWP A
- Up to 50 UWP A each UWP M



VMU-MC

- Dimensions 1 DIN modules
- 2 SO input (pulse counting or ON/OFF monitoring)
- MODBUS output
- 24 VDC power supply
- LCD display
- Modular solution (from 2 to 11 SO inputs)

MAIN FEATURES

- Modular solution (from 2 to 11 SO inputs)
- Configuration by UCS Software
- Compatible with Utility meters with SO output



VMU-OC

- Dimensions 1 DIN modules
- 3 SO input (pulse counting or ON/OFF monitoring)
- Local bus connection to VMU-MC
- Local bus power supply
- Extension module for VMU-MC

MAIN FEATURES

- Configuration by UCS Software
- Compatible with Utility meters with SO output

Cloud multi-site aggregation server	Touch screen/ data logger	Touch screen/ data logger	Power transducers
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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 UWP 3.0



BTM-T4-24

- 4" 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



BTM-T7-24

- 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



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, 32A (max 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, 32A (max 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, 100A

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 5A



EM330

- 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

MAIN FEATURES

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

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



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, 65 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 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

- 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 (wired or wireless) or Dupline® port

MAIN FEATURES

- Direct measurement in a very compact housing to save space
- Suitable for measuring generated and consumed energy
- Embedded Wireless M-bus port with external of fully integrated antenna
- CE, MID, cULus (only EM24 5A)

3-phase power analyzers



WM15

- 96 x 96 mm panel mounting housing
- Accuracy 0.2 % (voltage, current)
- Class B (kWh, EN50470)
- Self or aux. power supply
- Digital output and serial port
- Optical port
- CE, MID (for 3-phase with Neutral and Aaron connections), cULus approved

MAIN FEATURES

- Suitable to measure generated and consumed energy, with relevant hourmeter
- Easy and error-proof programming
- Fast commissioning in few minutes thanks to the freeware UCS software or Android App

Our product range

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

3-phase power quality analyzers



WM30

- 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
- cULus

MAIN FEATURES

- Modular housing to build the instrument according to the real application needs
- Modbus and BACnet (both RS485 or Ethernet), Profibus DPVO, and EtherNet/IP communication port available

3-phase power quality analyzers



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
- cULus

MAIN FEATURES

- Built-in datalogger for instantaneous variables, dmd profiles and events
- Modular housing to build the instrument according to the real application needs
- Modbus and BACnet (both RS485 or Ethernet), Profibus DPVO, 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-recognition

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-recognition

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

Building Automation

Our product range

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

- 56 x 22.5 x 49 mm; DIN-rail housing
- 7 input ranges from 5 A to 50 A AC
- Output 4-20 mA DC
- No power supply
- CE, cURus

MAIN FEATURES

- Easy PLC interfacing
- Automatic output scaling
- LED indication

AC current transformers



A82

- 95 x 67.5 x 20 mm; 27 mm hole for current measurement
- 25 A to 500A AC inputs
- Output 4-20 mA, 0-20 mA, 0-10V DC
- CE, UL

MAIN FEATURES

- Easy PLC interfacing
- True RMS measurement
- Load status information to the PLC

AC current relays



DIA53

- 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

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

ON/OFF relays



DIA02

- 80 x 22.5 x 99.5 mm; DIN-rail housing
- Current measurement by internal shunts or external CT
- 20 mA to 5A ranges
- Power supply 24-48 VAC/DC; 115/230 VAC
- CE, cULus

MAIN FEATURES

- ON/OFF status for small critical loads
- Easy PLC interfacing
- LED for quick troubleshooting

3-phase monitoring relays



DPA51 / DPA52

- 81 x 17.5 x 67.2 mm; DIN-rail housing
- Phase sequence and phase loss, regenerated voltage detection
- 3 phase AC (own power supply)
- Power supply 208 - 480 VAC
- CE, UL, CSA, CCC

MAIN FEATURES

- Motors protection from reverse running and phase loss
- 1 DIN module width. Suitable for NORM panels
- No setup needed (plug&play)

3-phase voltage asymmetry relays



DPB02 / PPB02

- 80 x 22.5 x 99.5 mm; DIN-rail housing [DPB02] or 80 x 36 x 94 mm; Plug-in housing [PPB02]
- Phase sequence and phase loss, regenerated voltage detection
- Monitoring 3-phase voltage asymmetry
- Power supply 208 to 480 VAC
- CE, UL, cULus, CCC

MAIN FEATURES

- Asymmetry setpoint with Alarm ON delay
- Protects from motor overheat and loss of torque
- Flexible mounting for DIN-rail or Plug-in

3-phase voltage relays



DPB51 / DPB52

- 81 x 17.5 x 67.2 mm; DIN-rail housing
- Phase sequence and loss; overvoltage and undervoltage detection + time delay
- 3 phase connection; 3 phase + neutral connection [DPB51]
- Power supply 208-480 VAC
- CE, UL, CCC

MAIN FEATURES

- Complete mains monitoring in a space saving solution
- Neutral loss protection [DPB51]
- Small size for the control panel

Our product range

Timers	Earth leakage protection relays	Earth leakage protection relays	3-phase scroll compressor soft starters
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DAA51 / DMB51

- 81 x 17,5 x 67,2 mm; DIN-rail housing
- Delay on operate function [DAA], multifunction [DMB]
- Combined AC and DC power supply
- Repeatability: < 0.2%
- CE, UL, CSA, RINA approved [DMB51]

MAIN FEATURES

- Wide range of timing functions
- Timing range 0.1 s to 100 h
- 5 A SPDT relay



DEA71

- 81 x 35.5 x 67.2 mm; DIN-rail housing
- 2 SPDT 5 A relay outputs
- LED leakage Level indicator
- Power supply 24 - 240 VAC
- CE (IEC EN 60947-2 Annex M compliant), cULus

MAIN FEATURES

- Fixed Trip Current Setting
- Remote Test / Reset push button input
- Warning Indication and output



DEB71

- 81 x 35.5 x 67.2 mm; DIN-rail housing
- 2 SPDT 5 A Relay Outputs
- LED leakage level indicator
- Power supply 24 - 240 VAC
- CE (IEC EN 60947-2 Annex M compliant), cULus

MAIN FEATURES

- Adjustable Trip Current Setting from 30 mA to 30 A
- Remote Test / Reset push button input
- Warning Indication and output



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)

3-phase scroll compressor soft starters	3-phase pump and ventilator soft starters	3-phase general purpose soft starters	2-pole solid state relays
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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



RK

- Dimensions 45 x 58 x 33 (44) mm, panel mounting
- Independent control (RKD2..) or common control (RK2..)
- Ratings: up to 660 VAC, 50 AAC /pole, 75 AAC /pole
- Control input: 4-32 VDC
- CE, cURus, CSA, VDE, EAC

MAIN FEATURES

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

Building Automation

Our product range

1-phase solid state contactors



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

3-phase solid state contactors



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

1-phase proportional controllers



RGS1P / RGC1P

- Product width 35 mm up to 70 mm, DIN or Panel mounting
- Ratings: up to 660VAC, 90AAC, 18000A²s
- 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

3-phase proportional controllers



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

Switching power supplies



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
- CE, cULus, cURus, UL1310 Class 2 (up to 90W), ISA 12.12.1 Class I Div2, TÜV, CCC

MAIN FEATURES

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

Switching power supplies



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
- Plastic and Metal enclosures
- CE (all), cULus (all except 240 W) and cURus (only 120 W), UL1310 Class 2 (up to 72 W, for 72 W only for 24 VDC models)

MAIN FEATURES

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

Our product range

Switching power supplies



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
- CE, cULus, cURus, UL1310 Class 2 (up to 91.2 W), ISA 12.12.1 Class I Div2, TÜV

MAIN FEATURES

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

Switching power supplies



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
- CE, cURus

MAIN FEATURES

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

Switching power supplies



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, cURus (all), cULus (SPUC only), TÜV (SPUC only)

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

Industrial relays and sockets



RSLM

- SPST or SPDT option
- Contract rating for 6 A, 250 VAC/30 VDC
- Coil voltage from 12 VDC to 60 VDC
- Suitable for use with PLCs, valves actuation or solenoids
- 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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