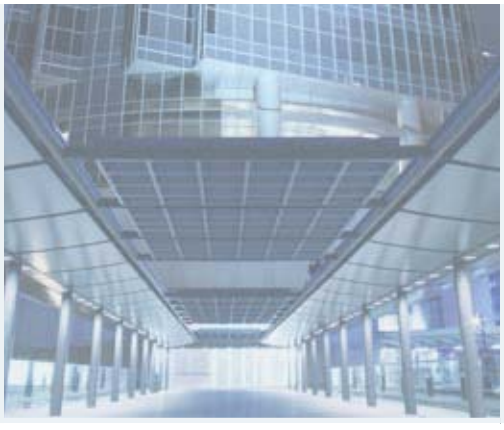
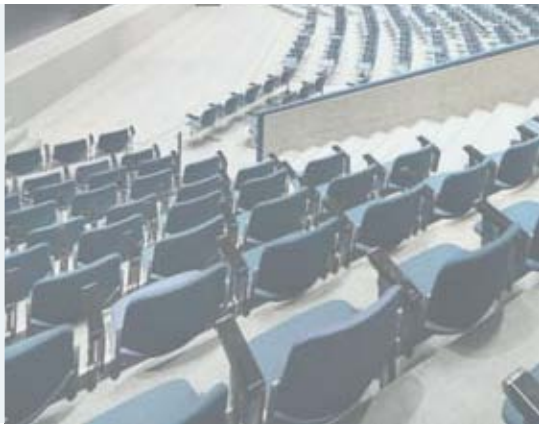
CARLO GAVAZZI
Automation Components

CARLO GAVAZZI





Building Automation

Solutions for
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 four product lines: Sense, Switch, Control and Fieldbus.

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.

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**

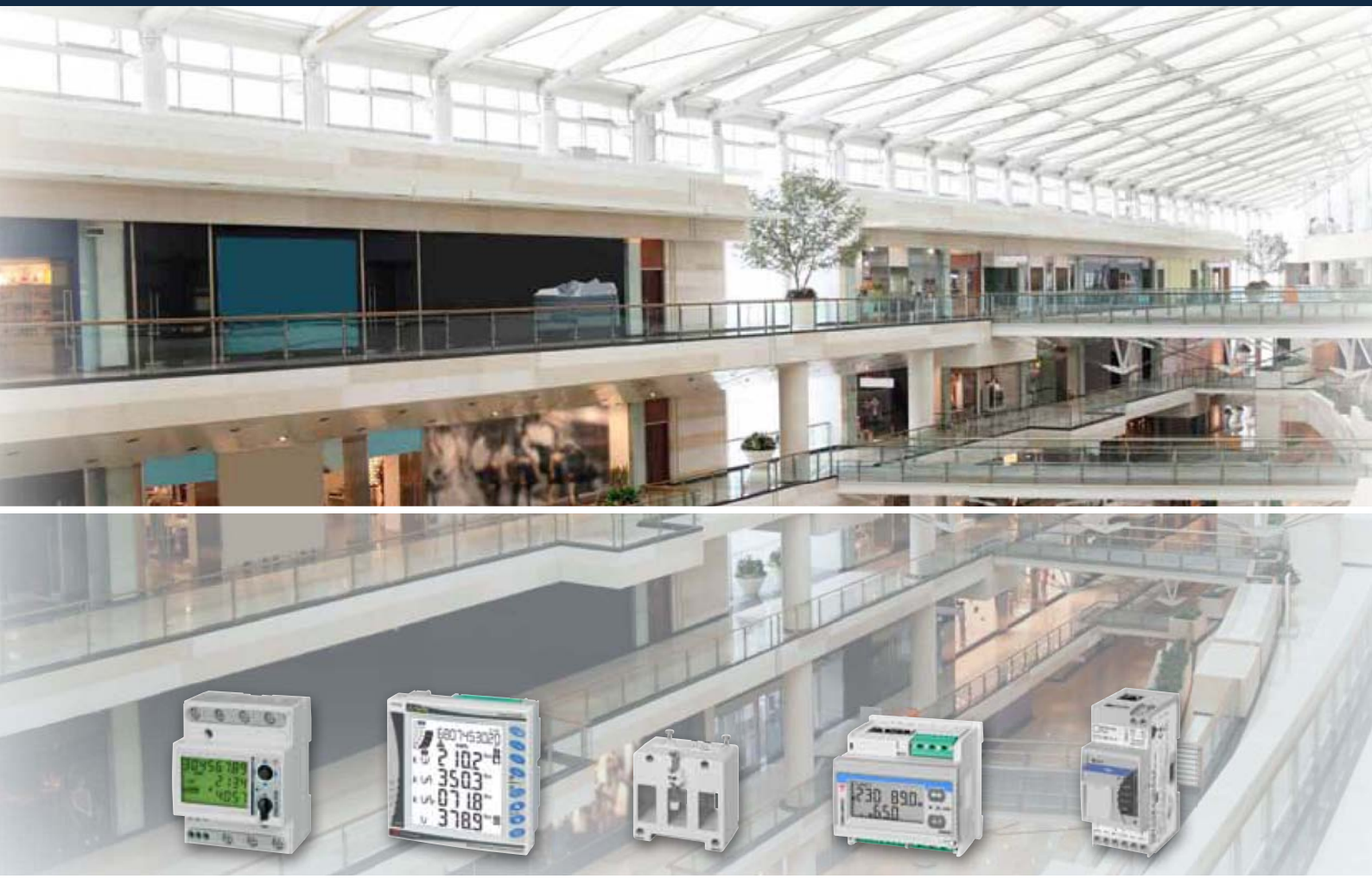
Commercial Buildings and Infrastructures

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_2 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.

Metering



MID energy meters	Power analysers	Current transformers	Quick-fit energy meter	Web-server
EM23 EM24 EM26	WM30 WM40	CTD TCD	EM270	VMU-C EM VMU-W

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 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 meter EM270.

The EM270 can manage 2 current inputs, so it can monitor 2 three-phase loads at the same time. Even 3, if we consider that it also includes a virtual meter which automatically calculates the sum of the 2 measured loads.

In addition, compact 3-phase current transformers, having hole centres compatible with different circuit breakers, contribute to a smart and rational use of the available space in any switch board.

Lighting control

BACnet controller	DALI controller	PIR/LUX sensors	Light switches	Decentral input modules	Decentral relay
SB2WEB24	SB2DALI230	SHSQP360L SH...P90L SH...P150/150L	B5X-LS4-U B4X-LS4-U	BDB-INCONX-U SHPIN	BDA-RE13-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.

HVAC systems

Soft starters	Environmental sensors	PIR sensors	Solid state relays	Monitoring relays	Energy meters
RSBD/RSGD RSBT/RSDR	SHSU....D SHSU....L SHSU....	SHSQP360L SH...P90L SH...P150/150L	RGC1A/RJ1P RGC2A/RGC3A RGC2P/RGC3P	DPA51 DPA53 DPB51	EM10/EM11 EM210 EM2172D

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 RGC3P series 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.
Soft starters control the acceleration and deceleration of motors and compressors, eliminating current peaks and mechanical shocks and increasing the life-span of the equipment.
Presence sensors provide zoned temperature control by setting on/off time schedules for the right climate conditions.

Integrated solutions

BACnet controller	DALI controller	PIR/LUX sensors	Light switches	Environmental sensors	Decentral I/O modules
SB2WEB24	SB2DALI230	SHSQP360L SH...P90L SH...P150/150L	B5X-LS4-U B4X-LS4-U	SHSU....D SHSU....L SHSU....	SHPIN.... BDB-INCONX-U BDA-RE13-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, 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.

Parking guidance system

Dupline® master module	Master Zone Counter	Ultrasonic sensors	LED indicator	Carpark displays	Carpark software
GP32900003	GPMZ-SET	GP6220.. GP6240..	GP6289.. GP6265..	GP676330.. GP676301..	DUP-PGS-SW

The Parking Guidance System (PGS) is based on Carlo Gavazzi's expertise in sensing and communication technology within the industrial automation market. Our patented Dupline® 3-wire bus is a tried and tested network with more than 150,000 installations worldwide. The PGS is completely scalable and can be used in any type and size of indoor carpark. In spite of the advanced functions, the system is surprisingly easy to install and configure, providing the detection, counting and indication of vacant spaces. By means of dynamic green arrows, drivers are directed to the closest free parking bay, resulting in considerable time-saving.

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 carparks, besides the controller, sensors, LED indicators and displays, also includes a series of easy to install 'loop detectors'. Based on an inductive measurement principle, a coil of wire is buried in the ground, detecting cars driving over it. Typically it is installed in the ground in front of a security entry gate or to detect the occupancy of outdoor parking bays. In addition to the single space detection system, Carlo Gavazzi also provides a zone count solution. Sensors detect the cars entering and leaving the zones, thereby allowing the master zone counter to keep track of the available spaces and showing them on parking zone displays. Combined single spot and count systems are possible resulting in great advantages.

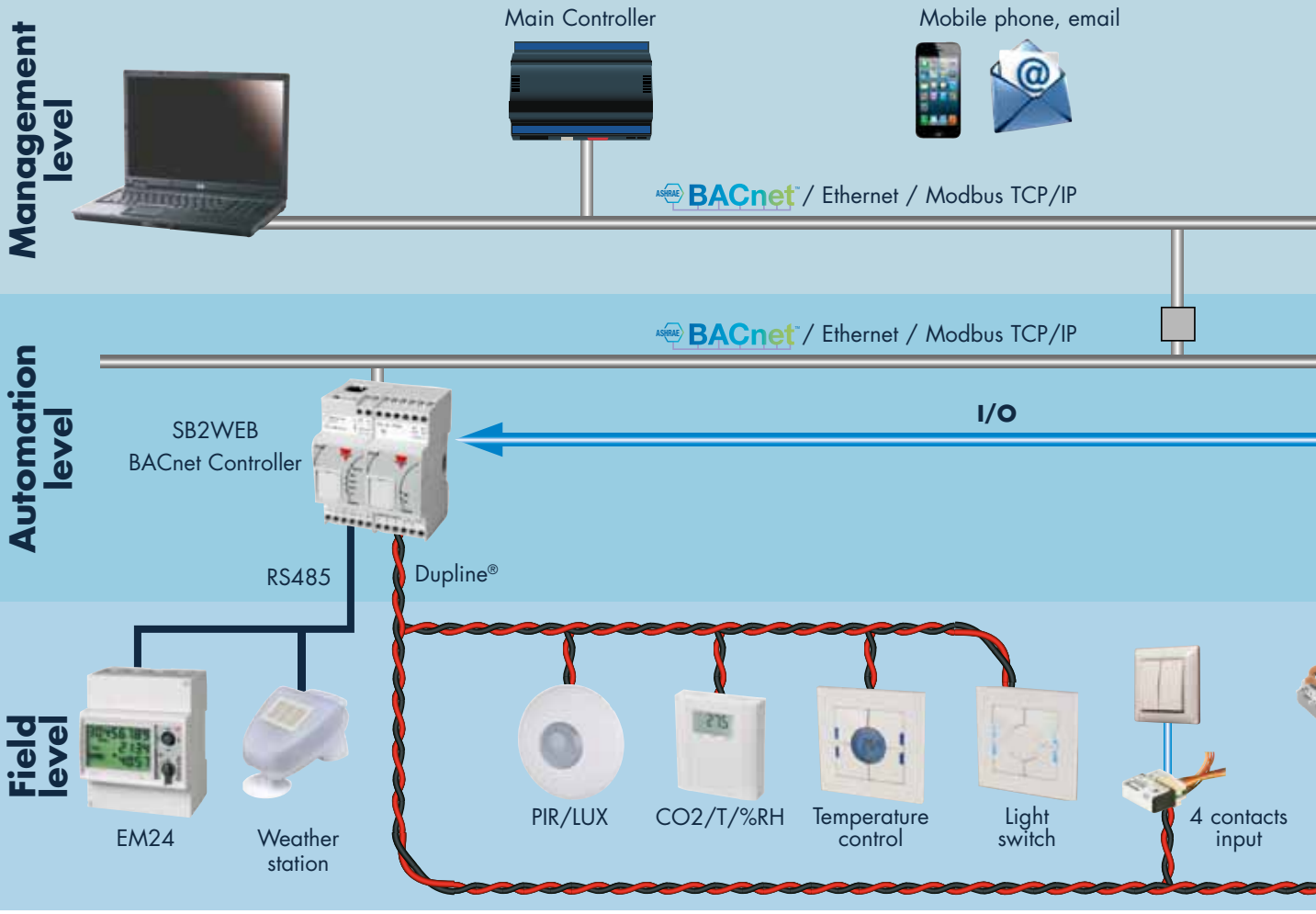
A specific web app has been developed so as to provide an easy remote access to the carpark occupancy data via smart phone and an improved carpark revenue and management via the booking system.

Monitoring and protection

Power Transducers	Current Transformers	Voltage monitoring relays	Current monitoring relays	Surge protection devices
CPT	E83 A82 MP3	DPA51 DPA53	DIA53 DIA01	DSF A/P DSB A/P DSB51XXDP

Good voltage level and stability 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 three-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 new Surge Prrotection devices can be used in Building Automation applications, in order 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 diagrams



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 cetralize the data in the BACnet controller SB2WEB.

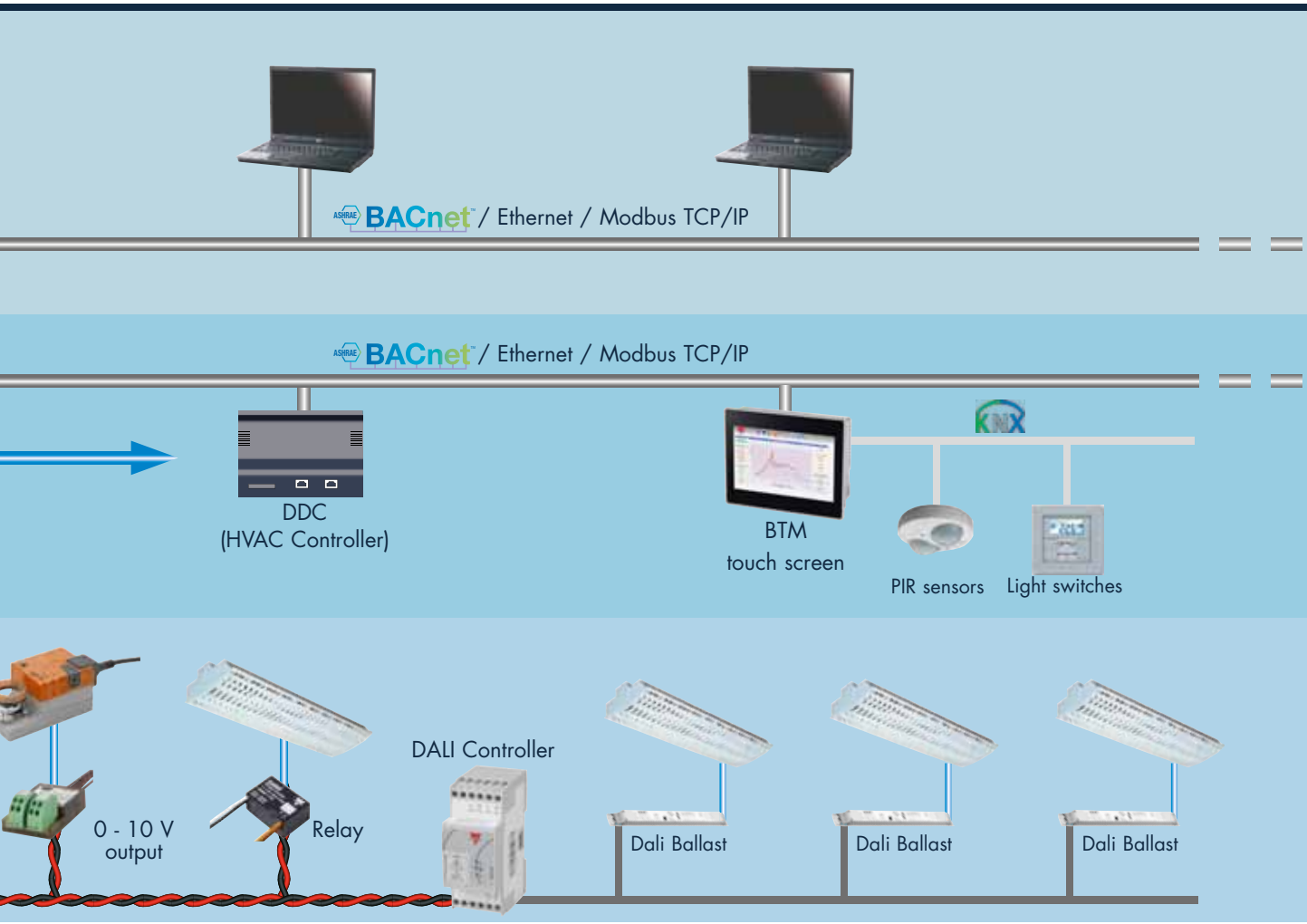
Any DCC and BMS front end with the capability to act as BACnet client then have access to all the Dupline® data points via the BACnet/IP connection, thereby eliminating the need for hardwired I/O.

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 100.000+ 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.



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

Our product range

BACnet controller

SB2WEB24

- Multi-protocol device
- Flexible modular plug-in concept for Dupline® bus drivers
- 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

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

Dupline® channel 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 controller

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
- Can be linked to Dupline® at any point in the installation
- 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

Relay module with energy reading

SH2RE16A2E230

- 2 outputs relay
- Energy reading
- 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
- 230V supplied

Relay module

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

Solid state relay module

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

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

Digital input module and pulse counter

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

Our product range

Light switch interface

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

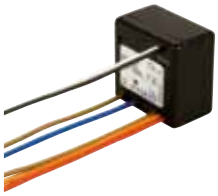
Voltage input module

BDA-INVOL-U

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

MAIN FEATURES
- Compact housing
- 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

Decentral output module

BDA-RE13A-U

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

MAIN FEATURES
- Bus powered

Analogue input module

SHPINV324
SHPINV2T1P124
SHPINT1P1

- Input modules for thermistor, resistor and voltage measuring
- Ranges: 10K3 thermistor input, 1-11K resistor input, 0-10 V input

MAIN FEATURES
- SHPINV324: three 0-10 V input
- SHPINV2T1P124: two voltage input, one thermistor and one resistor input
- SHPINT1P1: one thermistor and one resistor input
- Bus powered

Analogue output module

SHPOUTV224

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

MAIN FEATURES
- DC power supply

Outdoor temperature sensor

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

Luxmeter 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

Our product range

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

PIR detectors + integrated LUX meter

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

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, NICO an Bticino
- SHE: Developed to fit into wall socket from Elko, Gira and Jung

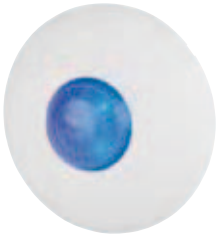
Touch screen/ data logger

BTM-T4-24/BTM-T7-24

- 4" and 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
- BACnet protocol available
- USB port, SD memory, Modbus RTU serial port
- KNX compatibility plug-in

PIR detectors + integrated LUX meter



SHA4XP90L / SHE5XP90L
SHSDP90L / SHSBP90L
SHSPP90L / SHSQP360L

- Passive infrared detector (PIR)
- Detects movement and presence
- Indoor and outdoor applications
- Operating angle: 90° and 360°
- Lighting measuring range: 0 to 20 K lux

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

Luxmeter 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

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

Our product range

Environmental sensors

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

- Room sensors for CO_2, 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_2 range: 0 to 2000 ppm

MAIN FEATURES
- Easily mountable
- Bus powered
- Low current consumption

Environmental sensors CO_2

CGESC02

- CO_2 sensor
- Duct and wall mounting
- Working range 0-2000 ppm / 0-5000 ppm
- 3 outputs: 0-10 V; 4-20 mA; switching output
- Supply voltage: 24 V AC/DC

MAIN FEATURES
- High accuracy ±50 ppm (+2%) at 2000 ppm
- Auto-calibration
- Plug&Play: no settings needed

Environmental sensors humidity and temp.

CGESHT

- Relative Humidity and Temperature sensor
- Duct and wall mounting
- Working range 0...95% RH; 0...50°C
- 2 outputs: 0-10 V; 4-20 mA; Supply voltage: 24 V AC/DC

MAIN FEATURES
- Different probe length
- Display
- Plug&Play: no settings needed

Environmental sensors air velocity

CGESAIRVEL

- Air Velocity sensor
- Duct mounting
- Working range 0...10/15/20 m/s
- Outputs: 0-10 V; 4-20 mA;
- Supply voltage: 24 V AC/DC

MAIN FEATURES
- Low angular dependence
- Very good accuracy at low air velocity
- Plug&Play: no settings needed

Energy meters

EM10 DIN / EM11 DIN

- Single-phase energy meters with direct connection
- Current input up to 32 A
- 1 DIN module dimension
- Class 1 (kWh) acc. to EN62053-1
- Pulse open collector output

MAIN FEATURES
- Direct measurement in a very compact housing to save space
- Suitable to measure generated energy
- MID Annex D certification available

Energy meters

EM210 / EM2172D

- 3-phase energy meters with CT connection
- Solid or split-core 5A CT
- Dimensions 4-DIN rail module or 72x72 housing
- Class 1 (kWh) acc. to EN62053-1
- Pulse open collector or serial RS485 output

MAIN FEATURES
- Very compact and space saving meter
- Can be installed both on DIN-rail or on the panel
- On request, MID annex D certification available

Energy meters

EM23, EM24

- Single-phase and 3-phase energy meters with direct connection
- Current rates up to 65 A
- 1 or 4 DIN rail housing dimensions (EM23 and EM24)
- Class 1 (kWh) acc. to EN62053-1
- Pulse open collector output
- Modbus conection port (EM24)

MAIN FEATURES
- Direct measurement in a very compact housing to save space
- Enables and simplifies energy cost allocation
- MID Annex D certification available

Energy analyser

EM26 96

- 3-phase energy meters with CT/VT connection
- Primary current input: 5 A
- 96 x 96 mm housing dimensions, only 45 mm behind the panel
- Class 1 (kWh) acc. to EN62053-1
- Modbus communication port

MAIN FEATURES
- Energy analyser in a very compact housing to save space
- Suitable to measure generated and consumed energy
- MID Annex D certification available

Our product range

Smart modular power analysers

WM30/WM40

- Dimensions: 96 x 96 mm panel mounting housing.
- Accuracy 0.2 % (voltage, current)
- 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 and BACnet-IP communication ports available

Quick-fit energy meters

EM270

- Triple 3-phase energy meter with CT connection
- Current measurement by triple CT with RJ plug
- Dimensions 4-DIN rail module or 72x72 housing
- 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

Web Server

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

Compact mobile modem

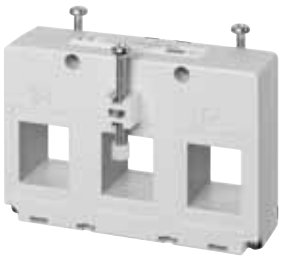
VMU-W

- Internet access point when regular wired network is not available
- Mobile modem: GSM, GPRS, EDGE, UMTS, HSPA
- Dimensions: 2 DIN modules

MAIN FEATURES

- Suitable for use in combination with VMU-C
- Automatic dual or quad band setting (850-900 Mhz, 1800-1900/2100 Mhz)

Triple current transformers



TCD

- Triple CT for EM270
- 3 current ranges: 160A, 250A, 630A
- Hole centres: 25mm, 35mm, 45mm
- Equivalent to class 0,5 (A)

MAIN FEATURES

- Dimensions compatible with Moulded Case Circuit Breakers
- For bus-bar, panel and DIN-rail mounting with included accessories
- Fast installation by RJ11 plug 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 EM21-72V energy meter

AC Current transformer

E83

- Dimensions: 56 X 22.5 X 49 mm
- 7 input ranges
- Ouput 4-20 mA DC
- No power supply
- UL, CSA approved

MAIN FEATURES

- Easy interface to PLC
- Built in hall sensor for current sensing
- LED indication

Our product range

Power transducers

CPT

- 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

Monitoring relay

DIA53

- Dimensions: 81x17.5x67.2 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 full scale
- Self powered
- UL - CSA - CCC approved

MAIN FEATURES

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

Monitoring relay

DPA51, DPA53

- Dimensions 81x17,5x67,2mm DIN-rail housing
- Phase sequence and loss relay
- 3 phase AC (own power supply); regenerated voltage
- Power supply from 208 to 480 VAC
- Undervoltage detection
- CE, UL, CSA and CCC approved

MAIN FEATURES

- Compressor protection from reverse running and phase loss
- 17.5 mm width: the smallest in the market
- Plug and play: no settings needed

Monitoring relay

DPB51

- Dimensions: 81x17,5x67,2mm DIN-rail housing
- TRMS 3-phase over/under voltage, phase sequence and loss
- 3 phase AC (own power supply); regenerated voltage
- Power supply 208 to 480 VAC
- Undervoltage detection
- UL and CSA approved

MAIN FEATURES

- Compressors protection from reverse running and phase loss
- Detects L-L and L-N voltage
- Independent voltage setpoints and built-in delays

Monitoring relay

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 approved

MAIN FEATURES

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

Surge arrester

DSF A/P

- Suitable for all single phase (A) and three phase (P) utilities
- Available for MCOV 300V, 385V, 460V and 550V
- 20kA Inom, 40kA Imax per pole
- Din rail mouting 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

Surge arrester

DSB A/P

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

MAIN FEATURES

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

Surge arrester

DSB51XXDP

- Dimensions 90 x 12 x 71.5mm DIN-rail housing
- 15Vdc nominal voltage
- 10kA Inom, 20kA Imax
- 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

Our product range

3-phase scroll compressor soft starters

RSBD / RSBT

- Enhanced current reduction capability with patented auto-adaptive algorithm
- Integrated advanced diagnostic functions
- 2-phase (RSBD) and 3-phase (RSBT) controlled and internally bypassed solutions
- Top of ramp and alarm relay indication

MAIN FEATURES

- No external settings required
- Mutli-voltage operation: 220-480 VAC 50/60 Hz
- Operational current: 55/70/95 AAC
- Internally supplied

3-phase scroll compressor soft starters

RSBD / RSBT Modbus

- Modbus RTU over RS485 serial communication
- User settable device address: 1 - 247
- Enhanced current reduction capability with patented auto-adaptive algorithm.
- cULus

MAIN FEATURES

- Communication of instantaneous variables (current, voltage, kWh, power factor)
- Remote start/stop via Modbus
- Alarm discrimination for quicker fault diagnosis

22 kW compact motor soft starters

RSGD 45mm

- Operational voltage range: 187 - 440 VAC, 187 - 660 VAC
- Operational current range: 12 AAC up to 45 AAC
- Control voltage : 24 VAC/DC, 110 - 400 VAC
- Auxiliary relays for top of ramp and alarms
- cULus, CCC

MAIN FEATURES

- Compact dimensions: up to 22 kW in 45 mm wide housing
- Easy to setup: standard 3-knob setting
- Internally bypassed and supplied

3-phase 280 kW soft starters

RSDR

- Motor Rating: Up to 280 kW @400 V
- Ramp up time: 0.5 - 30 sec
- Internally bypassed
- 6-wire connection capability
- UL approved

MAIN FEATURES

- Multi voltage operation: 230 - 460 VAC, 50/60 Hz
- Auxiliary relays for run signal and alarms

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 - 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

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

RJ1P

- Dimensions: 81.7 x 45 x 107 mm, DIN mount
- Rated operational voltage: up to 660 VAC
- Rated current: up to 50 AAC @ 25°C
- Control input: 4-20 mA, 0-10 V
- CE - cURus

MAIN FEATURES

- Integrated heatsink
- Phase angle or Distributed full cycle switching
- Optional ovetemperature 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

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

Our product range

Ultrasonic sensor

GP62xxxxxx724

- Ultrasonic sensor for detection of cars
- Option for built-in 2-colour LED indication (red/green, red/blue)
- Option for built-in bus-controlled 3-colour LED indication (red/green/amber, red/green/blue, red/blue/amber)
- Option to use external LED indicator (2-colour or 3-colour)
- Power and communication via Dupline 3-wire bus
- Protected against dust and moisture
- cUL approved

MAIN FEATURES

- Fast and easy wiring through push-wire connectors
- Built-in temperature compensation
- Extremely high detection accuracy

2-colour LED indicator

GP6289000x724

- External LED indicator for ultrasonic sensor
- 2-colour LED indication (red/green , red/blue)
- Controlled directly from carpark sensor G62402224724 output
- Low power consumption
- Protected against dust and moisture
- cUL approved

MAIN FEATURES

- Fast and easy wiring through push-wire connectors
- Easy mounting on ceiling or cable tray
- Clear and bright indication for the drivers

Bus-controlled 3-colour LED indicator

GP6265230x724

- External 3-colour LED indication (red/green/amber, red/green/blue, red/blue/amber)
- Power and control of colour via Dupline 3-wire bus
- LED colour can be controlled from PC software or Controller
- Protected against dust and moisture
- cUL approved

MAIN FEATURES

- Possibility to indicate space status (e.g. booked, time exceeded etc.)
- Possibility to install external indicators in one long bus-line along the lane
- Clear and bright indication for the drivers

Dupline® master module

GP34960005700

- Driver of power and communication for one bus segment with up to 120 sensors
- Powered from 28 VDC
- Modbus-RTU communication over RS485 / TCP with server running software
- DIN-rail mounting
- cUL approved

MAIN FEATURES

- Required to create a bus segment
- High current drive capability
- Free topology wiring of the bus

Carpark monitor

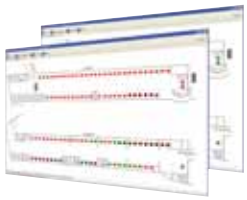
GP34829091724

- Programmable device for monitoring of several spaces
- Controls carpark displays via RS485 connection
- Slave mode for local segment monitoring, master mode for area monitoring
- DIN-rail mounting
- cUL approved

MAIN FEATURES

- Easy programming via handheld tool
- Up to 480 slave units in one system
- Possibility to enter offset value for display

Carpark software



DUP-PGS-SWxxxx

- Monitors all spaces in the PGS continuously
- Graphical overview of the status of the spaces in the parking facility
- Bar graphs and trend curves for occupancy rates in the different areas
- Logging of all parking incidents to provide possibility for historical analyzes
- Monitoring and logging of alarms like "exceeded parking time", "area almost full" etc.

MAIN FEATURES

- Real-time overview for the parking operators
- Analysis of historical data for optimized carpark performance
- Booking feature with easy selection of the relevant spaces

Count module

GP32950030700

- Controller in the Dupline® zone counting system
- Micro Linux PC with Ethernet port and Web-server
- Manages up to 3840 parking spaces in multiple zones
- Each zone can have multiple entry and exit points
- Easy configuration, monitoring and count adjustment via web-server

MAIN FEATURES

- Mixed systems with zone counting and single space detection possible
- Option to detect the split between handicap and standard spaces occupancy
- Requires 2 pcs GP32900003700 for external bus connection

Channel generator

GP32900003700

- Channel generator for the Dupline® 3-wire bus in zone count systems
- 24 VDC Power Supply
- Connect up to 120 count sensors via Dupline® L1 3-wire bus

MAIN FEATURES

- Provides power supply and communication line for the carpark sensors and monitors

Our product range

Masterzone counter

GPMZC-SET

- Complete set of cabinet modules required for zone counting

MAIN FEATURES
- Dupline® ultrasonic sensors, loop detectors or photoelectric sensors can be used
- Mixed systems with zone counting and single space detection possible

Carpark programmer

GP73800080

- Handheld programmer for sensors and Carpark Monitors
- Used to enter device addresses and operation modes
- Can be used as test unit to monitor status of spaces
- Used to trigger global calibration of sensors
- Battery powered

MAIN FEATURES
- Easy to use
- Programmer and test unit in one device
- Possibility to simulate sensors

Carpark displays

GP6763xxxx

- Display the number of available car spaces
- Various types available with different number of digits and with alphanumeric indication
- Indoor and outdoor version available
- 24 VDC DC-powered

MAIN FEATURES
- Clear indication with long distance visibility
- Aesthetic appearence
- Different operation modes selectable via DIP-switches

Carpark displays

GP6763xxxx

- Display the number of available car spaces
- Detect and display the difference between standard and disabled parking spaces
- Various types available with different number of digits and with alphanumeric indication
- Indoor and outdoor version available
- 24 VDC DC-powered

MAIN FEATURES
- Clear indication with long distance visibility
- Aesthetic appearence
- Different operation modes selectable via DIP-switches

Switching power supply

SPD

- DIN rail housing
- 1-phase (5-480 W), 2-phase (100 W), 3-phase (120-960 W)
- Rated input voltage: 85-264 VAC (1-phase), 380-575 VAC (2-phase), 340-575 VAC / 480-820 VDC (3-phase)
- Approvals/Marks: UL, cUL listed and TÜV/CE approved

MAIN FEATURES
- Power Factor Correction (PFC)
- Parallel versions available
- High efficiency (up to 93%)

Switching power supply

SPM

- DIN rail housing
- Universal input 90-264 VAC / 120-370 VDC
- Single phase and battery charger versions available
- Approvals/Marks: UL, cUL listed and TÜV/CE approved

MAIN FEATURES
- Operating temperature w/o derating -25°C to +60°C
- Short circuit and Overload protection
- High efficiency (up to 89%)

Switching power supply

SPPC 150

- AC input selectable by switch
- Input voltage range: 88 VAC~132 VAC / 176 VAC ~264 VAC
- Output protections: OLP / OVP / SCP
- Wide operating temperature (-25°C to 70°C)
- 105C long life electrolytic capacitors

MAIN FEATURES
- Competitive price and compact size
- DC output: 5, 12, 15, 24 and 48 V
- Good efficiency and high reliability

Switching power supply with PFC

SPPC 150 F

- Universal input voltage range: 85 VAC ~ 264 VAC / 120 VDC ~ 370 VDC
- High reliability
- Output protections: OLP / OVP / SCP
- 105C long life electrolytic capacitors
- 100% full load burn-in test

MAIN FEATURES
- Built-in active PFC (Power Factor Correction) function: PF > 0.98 @ 115 VAC and PF > 0.95 @ 230 VAC
- Competitive price and compact size
- DC output: 5, 12, 15, 24 and 48 V
- High efficiency (typ): 82 % - 87 %

Notes

Notes

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