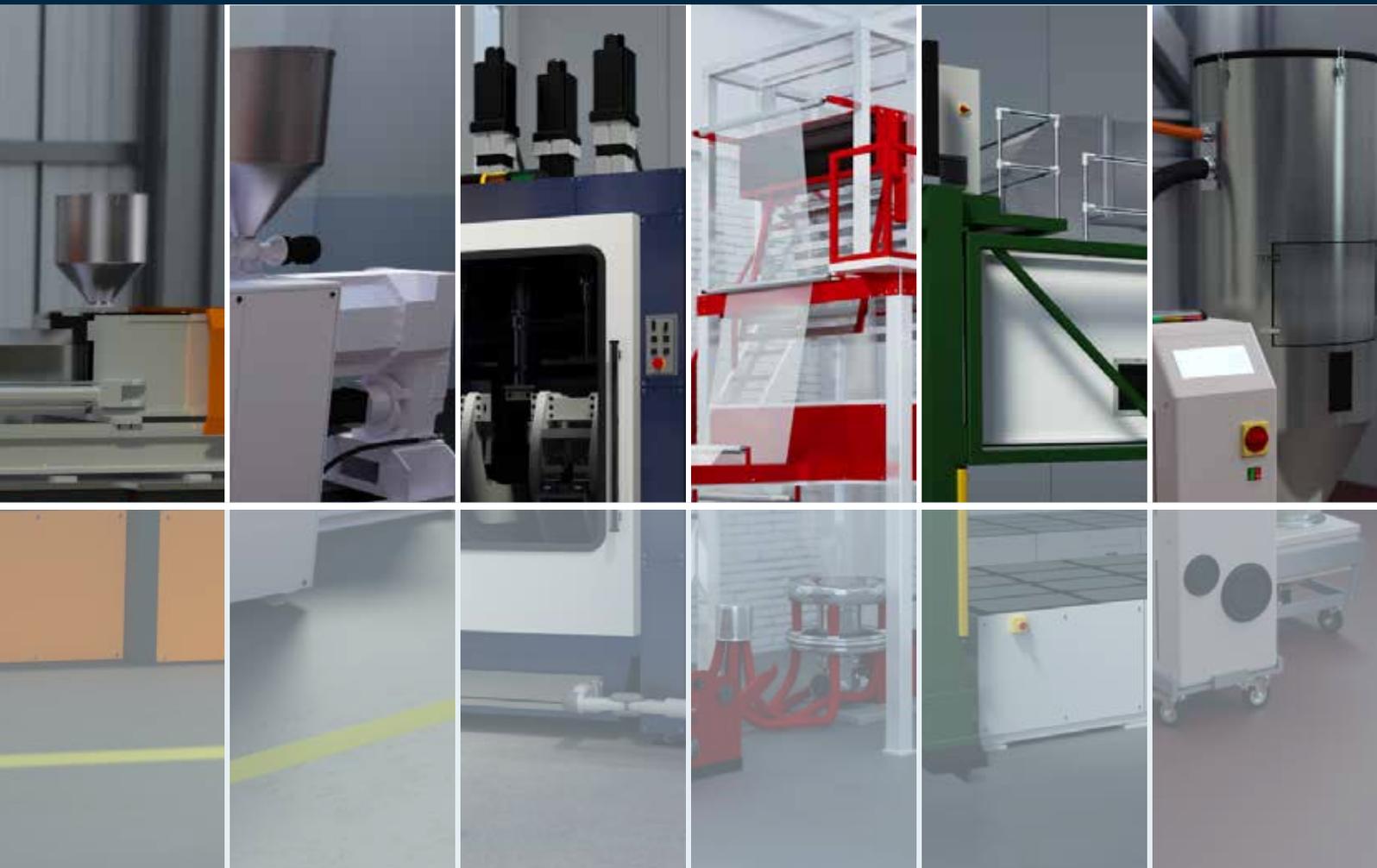


Industrial Automation

Solutions for
Plastics Machinery

Plastics Machinery

Solutions for



Injection machines

Extrusion machines

Blow moulding machines

Blown film extrusion machines

Thermoforming machines

Plastic dryers & Dosing systems

ABOUT CARLO GAVAZZI

Carlo Gavazzi Automation is a multinational electronics group active in designing, manufacturing 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: Sensors, Switches, Controls and Fieldbuses.

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 air-conditioning devices.



DESIGNED TO MEET MARKET REQUIREMENTS

Among the major types of plastics machinery, extrusion equipment has seen an interesting growth, thanks to the construction sector, with an increase in the demand for extruded goods such as pipes, fitting and coatings. Injection moulding equipment remains a large segment of the plastics machinery market. Injection moulding machines are used in a wide range of applications, ranging from automotive components to consumer goods.

The production efficiency of the machines for plastics has continuously increased over the last few decades. Appropriate temperature control is essential to ensure good quality of the final outcome. The

thermal stability necessary in such machinery can only be achieved through the use of solid state relays (SSRs) which are capable of meeting the demands for fast heater switching. The lifetime of the SSRs versus their mechanical counterparts ensures low production downtime and maximizes plant efficiency. Carlo Gavazzi offers a comprehensive range of SSRs which feature back to back thyristors in combination with direct copper bonding technology for increased lifetime and reliable operation of the SSR.

Carlo Gavazzi's patented Tripleshield™ capacitive sensors have become the standard all other manufacturers are measured against. Capacitive sensors will detect most materials, conductive and nonconductive. This makes them ideal for level detection in raw plastic delivery

systems. Carlo Gavazzi's ultrasonic, photoelectric and inductive sensors are also used extensively in plastics machinery. Ultrasonic sensors are ideally suited to detecting transparent objects.

In order to protect the working area, ensuring the safety of operators and the safe operation of the machines, Carlo Gavazzi provides a new range of safety light curtains, in conjunction with configurable and standard safety modules and safety magnetic sensors. The CERTUS configurable safety module offers up to 128 inputs and 16 pairs of programmable solid state outputs in a compact modular system, managing and monitoring, at the same time, safety sensors and commands, safety light curtains, photocells, emergency stops, two-hand controls, mechanical switches, laser scanners and safety mats.

Plastics Machinery

Injection machines



Solid state switches

Capacitive sensors

Safety magnetic sensors

Safety light curtains

Configurable safety modules

Energy analysers

RGC1A
RGS1A
RM1A

CA18
CA30
EC30

SMS
CLS

SC2
SC4

CERTUS

EM210
EM26 96
EM24 DIN

Process stability is critical to ensure high product quality. Stable temperatures are achieved by constant switching. Carlo Gavazzi solid state switches provide extremely reliable solutions that permit the fast switching needed in these processes. The RGS1 series and RM1 series are 1-phase solid state solutions which can be mounted on a chassis or an external heatsink, whilst the RGC1 series is provided with an integrated heatsink, hence ready for use. The integrated over voltage protection and high surge current capability of Carlo Gavazzi SSRs ensure trouble free operation, preventing unnecessary machine stoppages which result in scrap material and high down time costs.

Carlo Gavazzi's standard safety modules are used with safety light curtains, safety photo sensors, emergency stop buttons or safety magnetic switches.

In plastics machines, the gates must often be opened under safety conditions: the standard NES02 and NES13 modules enable the opening of the press motor mains when the gates are open.

For applications that require flexible logic or the multiple coordination of 3 or more safety devices, the CERTUS configurable safety module delivers a superior product vs its competitors, in terms of features and competitive price. CERTUS is certified to the highest

safety levels: SIL+, SILCL 3, Ple and Cat.4; it offers intuitive and quick logical configuration software, easy to set-up tamper proof safety systems, and a reduction in components and wiring.



Extrusion machines



Solid state switches

**RGC1A
RGS1A
RM1A**

Solid state switches

**RGC1S
RGS1S**

Solid state contactors

**RGC3A
RGC2A**

Capacitive sensors

**CA18
CA30
EC30**

Ultrasonic sensors

**UA18
UA30**

Switching power supplies

**SPD
SPPC
SPM**

Consistency and repeatability of extruded parts can only be ensured if the temperature control process is stable with minimum deviations from set points. Deviations from temperature set points are limited with fast switching of heaters which can only be done through solid



state relays. Carlo Gavazzi offers a wide range of solid state solutions for temperature control of the barrel zones. The RGC1 , RGS1 and RM1 series are 1-phase solutions, whilst the RGC3 series provides 3-phase switching solutions. The RM and RG series meet the industry EMC immunity requirements without the need for additional external components. Additionally, the RG series utilises wire bonding technology that reduces the thermal stress of the solid state switch, guaranteeing extended lifetime over other SSRs. The RGC1S and RGC3..M versions integrate detection for malfunction of the load or the SSR, where an alarm output

is readily available for immediate intervention.

Capacitive, photoelectric and ultrasonic sensors are used to detect any interruption in the extruded pipe. They ensure prompt intervention in the case of interruption and round-the-clock monitoring of the extrusion process.

In both injection machines and extrusion machines, Carlo Gavazzi's switches and sensors ensure smooth and efficient production processes, capacitive sensors in particular are widely used in silos.

Plastics Machinery

Blow moulding machines



Solid state switches

RGC15
RGS15
RGC1A

Inductive sensors

ICB12
ICB18

Photoelectric sensors

PA18

Monitoring relays

DIA53
DPA51

Web server

VMU-C EM

Safety light curtains

SC2
SC4

Reliable thermal process control is key in determining the quality of the final outcome in blow moulding. An accurate thermal process can only be guaranteed by continuous monitoring of the load and system parameters. The RGC15 series offers the ideal solid state switching solution. The RGC15

is equipped with integrated current measurement and so is able to detect variations in load current, which will ultimately affect temperature. The integration of current measurement within the solid state switch eliminates the need for additional external monitoring and so gives panel space

benefit as well as less installation time. The load current is continuously monitored and if a deviation is observed a partial load failure alarm is issued. The RGC15 is also able to detect load and solid state switch malfunction.

Photoelectric sensors and inductive sensors are installed along the machinery for part counting, detection and verification and for mould position detection.

The VMU-C EM is a comprehensive web-based monitoring solution to keep track of energy consumption in industrial facilities and to improve the energy efficiency of the installation.



Blown film extrusion machines



Solid state switches

RGC15
RGS15
RGC1A

Ultrasonic sensors

UA18
UA30

Capacitive sensors

CA18
CA30
EC30

Safety magnetic sensors

SMS
CLS

Monitoring relays

DIA53
DPA51

Power transducers

CPT

It is essential that plastics processing machines operate without breakdown. When the machine restarts after a breakdown, the material might also have to be scrapped: this is typical of blown film extrusion. By using an ultrasonic sensor to check film loop tension, film breakage is prevented

and interruptions in the production cycle are minimized. Three ultrasonic sensors placed round the cylinder of blown plastic film, measuring the actual diameter of the cylinder, are used for controlling the air pressure and maintaining a controlled diameter and thickness of the plastic film.

If the distance of the bubble surface from the machinery is not controlled, dangerous contacts can occur. Several analogue ultrasonic sensors can be positioned to constantly check the size and the shape of the bubble.

To monitor the ON/OFF switching of groups of the heating elements, a DIA53 monitoring relay can be used. This does not need any auxiliary power supply. It is supplied by the measured current, with a built-in current transformer up to 100 A. Furthermore, a CPT power transducer checks the electrical parameters vital for the motor, as a motor running in overload condition can suffer irreparable damage.



Plastics Machinery

Thermoforming machines



Solid state switches

**RGC1F
RGC1A
RJ1P**

Ultrasonic sensors

**UA18
UA30**

Inductive sensors

**ICB12
ICB18**

Safety light curtains

**SC2
SC4**

Safety modules

**NA1 3
NL1 3**

Temperature controllers

**PDI 409
PDI 720**

In thermoforming processes, heating is a critical phase. The plastic sheet needs to be evenly heated at the right temperature before entering the forming phase; failure to control the heat evenly and precisely results in a poor quality product.

The temperature is controlled via a



temperature sensor and the signal is then sent to a PID controller. The PID control needs to be extremely efficient and so fast switching of the heaters is mandatory. This can only be done with the use of solid state relays. A number of heating zones are used to ensure even heating. This requires a number of solid state relays to control all the heaters and panel space is often a challenge. Carlo Gavazzi's new series of solid state contactors, the RGC1F, offer a compact solution which also integrates fuse protection. This solution is provided in the same footprint as a standard solid state relay, whilst freeing up space normally utilised for protection components. An integrated

solution provides saving on installation time and costs. Inductive sensors placed in the mould, at the end of the pins, can detect whether the mould is properly sealed, enabling the system to start with a new injection process, thus preventing damage to the machinery, as well as improving safety conditions. The new eco-friendly potting material of ICB sensors, allow higher resistance to shocks and vibrations.

Plastic dryers & Dosing systems



Solid state switches

**RM1A, RGC1A
RGC2A, RGC3A**

Proportional controllers

**RGC3P
RGC2P
RJ1P**

Capacitive sensors

**CA18
CA30**

Dupline® controllers

G3800

Photoelectric sensors

PA18

Temperature controllers

**PDI 409
PDI 720**

Carlo Gavazzi components also integrate well also in auxiliary equipment that is used in combination with plastics machinery such as plastic dryers and dosing units, as well as stand-alone temperature control units for zone control.

Wherever plastic granules are conveyed and processed, capacitive sensors monitor the levels in pipes and in silos or through sight glasses in loaders on injection machines, extruders and blow moulding machinery. Thanks to Tripleshield™ technology, Carlo Gavazzi capacitive sensors are protected against disturbances caused by high ESD up to 40 kV. Featuring EMC and ESD immunity, Carlo Gavazzi sensors – EC and CA series - detect the level of plastic pellets in the hopper whilst

withstanding environmental interference. The sensing face (flush mounted) withstands temperatures up to 120°C.

Additionally, heaters for the drying of the plastic granules can be switched with RM1A or RGC1A for 1-phase heaters or RGC2A, RGC3A for 3-phase heaters. The RJ1P, RGC2P and RGC3P series offers the possibility of controlling the switching of the heater with an analog input (0-10V or 4-20mA) which can be fed directly to the SSR.

PDI temperature controllers are the ideal devices for controlling and monitoring the temperature with absolute precision. Furthermore, Carlo Gavazzi Dupline® fieldbus system can be used to monitor several production lines. Pulse outputs

from energy meters are connected to Dupline® counter modules, alarm outputs of temperature controllers are fed into digital input modules and pressure transducers are connected to analog 4-20 mA input modules. All values and alarms are transmitted to a central monitoring PC with a SCADA system.



Plastics Machinery

Our product range

1-phase solid state relays



RAM1A / RM1A

- Dimensions 58.2 x 44.8 x 28.8mm, panel mount
- Rated operational voltage: up to 660 VAC
- Rated current: 25 AAC, 50 AAC, 75 AAC, 100 AAC, 125 AAC
- Control input ranges: 4-32 VDC, 20-280 VAC
- Approv/Marks: CE - cURus - CSA - CCC - VDE [RAM]

MAIN FEATURES

- Zero cross or Random switching
- Suited to resistive, inductive or capacitive loads
- Integrated output overvoltage protection [RM]

1-phase solid state switches



RGS1A / RGC1A

- Product width: 17.5 mm up to 70 mm, DIN or panel mount
- Ratings: up to 660 VAC, 90 AAC, 18000 A²s
- Integrated output overvoltage protection
- Control input ranges: 4-32 VDC, 20-275 VAC (24-190 VDC)
- Approv/Marks: CE - cULus [RGC] - cURus [RGS] - CSA [RGS] - VDE - GL [RGC up to 30 AAC]

MAIN FEATURES

- Integrated heatsink [RGC1A], without heatsink [RGS1A]
- 100 kA short circuit current rating
- Optional overtemperature protection

1-phase solid state switches with current monitoring



RGS1S / RGC1S

- Product width: 17.5 mm up to 70 mm, DIN or panel mount
- Ratings: up to 660 VAC, 85 AAC, 18000 A²s
- Integrated output overvoltage protection
- Control input range: 4-32 VDC
- Approv/Marks: CE - cULus [RGC1S] - cURus [RGS1S] - CSA [RGS1S]

MAIN FEATURES

- Partial load failure detection (1/6)
- Monitoring for SSR and load circuit malfunction
- TEACH by local push button or remote signal

1-phase solid state contactors



RGC1F

- Dimensions: 106 x 35.6 x 165 mm, DIN mount
- Rated operational voltage: up to 660 VAC
- Rated operational current: up to 40 AAC @ 40°C
- Control input range: 4.5-32 VDC
- Approv/Marks: CE - cULus (up to 30 AAC)

MAIN FEATURES

- Integrated protection by semiconductor fuse
- Monitoring for SSR and load circuit malfunction [RGC1FS]
- 100 kA short circuit current rating

3-phase solid state contactors



RGC2A / RGC3A

- Product width: 54 mm up to 70 mm, DIN-rail mount
- Ratings: up to 660 VAC, 75 AAC/pole [RGC2A], 65 AAC/pole [RGC3A] @ 40°C
- Motor ratings: up to 11 kW @ 400 VAC, 25 HP @ 600 VAC
- Control input ranges: 5-32 VDC, 20-275 VAC (24-190 VDC)
- Approv/Marks: CE - cULus

MAIN FEATURES

- 3-phase; 2-pole [RGC2A] or 3-pole switching [RGC3A]
- Monitoring for SSR and load circuit malfunction [RGC..M]
- 100 kA short circuit current rating

1 and 3-phase proportional controllers



RJ1P / RGC2P / RGC3P

- Product width: 45 mm up to 70 mm, DIN-rail mount
- Rated operational voltage: up to 660 VAC
- Rated current: 40 AAC [RJ1P], 75 AAC/pole [RGC2P], 65 AAC/pole [RGC3P] @ 40°C
- Control input: 0-20 mA, 4-20 mA, 12-20 mA, 0-10 VDC, 0-5 VDC, 1-5 VDC
- Approv/Marks: CE - cULus [RGC2P, RGC3P] - cURus [RJ1P]

MAIN FEATURES

- Phase angle, Distributed full cycle switching or soft starting
- Integrated output overvoltage protection
- Monitoring for SSR and load circuit malfunction [RGC2P, RGC3P]

Capacitive sensors



EC30

- Tripleshield™ sensor protection
- Dimensions: M30 mm
- Plastic, metal housing, DC and AC versions
- Approv/Marks: CE - UL - CSA

MAIN FEATURES

- High EMC immunity
- Protection: short circuit, transient and reverse polarity

Capacitive sensors



CA18 / CA30

- 4th generation Tripleshield™ technology
- Dimensions: M18 / M30
- Plastic housings DC versions
- Sensing distance up to 30 mm
- Approv/Marks: CE - cULus

MAIN FEATURES

- Highest EMC immunity
- ESD ratings up to 40 kV
- Sensing face temperature up to 120°C
- Best immunity towards Inverters

Our product range

Inductive sensors	Photoelectric sensors	Ultrasonic sensors	Safety magnetic sensors
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ICB12 / ICB18 / ICB30

- M12, M18 and M30 Nickel-brass housing in short or long barrel lengths
- Standard and double distance sensing ranges
- Output functions: NO or NC, NPN or PNP
- Two meter oil resistant PVC cable or M12 plug version
- Protection: reverse polarity, short circuit, transients

MAIN FEATURES

- High precision and programmable outputs thanks to the microprocessor technology
- Eco-friendly potting material made from recycled corn by-product
- Improved design for highest reliability and resistance to vibration and impacts



PA18

- Dimensions: M18 x 39 mm
- Diffuse reflective sensors, 1 m detecting distance
- Cable or M12 plug versions
- Power supply from 10 to 30 VDC
- Approv/Marks: CE - cULus

MAIN FEATURES

- Sensors used to detect the finish plastic items
- Fast mounting, smooth finish
- Sensitivity adjustment



UA18 / UA30

- Dimensions: M18, M30
- Ultrasonic sensors with integrated amplifier providing a digital and/or analog output and integrated amplifier
- Housing material: plastic
- Approv/Marks: CE - cULus - CSA

MAIN FEATURES

- Excellent EMC performance and precision
- Detects clear, transparent and shiny targets, solid objects, liquid or granules.
- Protection: short circuit, transient and reverse polarity



SMS / CLS

- Dimensions: 88 x 25 x 13 mm
- Normally open or closed output
- Up to 100 VAC switching
- 250 mA maximum output
- Up to 5 VA switching power

MAIN FEATURES

- Rugged plastic housing
- Operating temperature : -10 to 55°C
- IP65 protection

3-phase monitoring relays	3-phase monitoring relays	Current monitoring relays	Current transformers
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DPA51

- Dimensions: 81 x 17.5 x 67.2 mm DIN-rail housing
- Phase sequence and loss relay
- 3 phase AC (own power supply); regenerated voltage
- Power supply from 208 to 480 VAC
- Approv/Marks: CE - UL - CSA - CCC

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



DPB51

- Dimensions: 81 x 17.5 x 67.2 mm DIN-rail housing
- TRMS 3-phase over/under voltage, phase sequence and loss relay
- 3 phase AC (own power supply); regenerated voltage
- Power supply 208 to 480 VAC
- Approv/Marks: UL - CSA

MAIN FEATURES

- Detects the phase-phase or phase neutral voltage
- 17.5 mm width
- Independent voltage setpoints and built-in delays



DIA 53

- Dimensions: 81 x 17.5 x 67.2 mm DIN-rail housing with 12 mm hole for current measurement
- Current monitoring relay with built in current transformer
- 20, 50 or 100 A full scale
- Self powered
- Approv/Marks: UL - CSA - CCC

MAIN FEATURES

- 2 wire connection
- Knob adjustable setpoint
- Integrated solid state NPN PNP output



E83-2050

- DIN-rail or surface mounting 22.5 mm Euronorm housing with 12 mm hole for current measurement
- AC current transformer with 4-20 mADC secondary
- 1 phase AC current measurement
- Power supply from 10 to 40 VDC
- Approv/Marks: UL

MAIN FEATURES

- 7 knob selectable ranges from 5 to 50 AAC
- Easy interface to PLC or monitoring relays

Plastics Machinery

Our product range

Energy analysers



EM210 / EM21 72D

- 3-phase energy meters with CT connection
- Solid or split-core 5A CT
- Dimensions: 4 DIN modules 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
- MID annex D certification available (EM21 only)

Energy analysers



EM24 DIN

- 3-phase energy meters with direct connection
- Current input up to 65 A
- Dimensions: 4 DIN modules
- Class 1 (kWh) acc. to EN62053-1
- Pulse open collector output
- Modbus communication port

MAIN FEATURES

- Direct measurement in a very compact housing to save space
- Suitable for measuring generated and consumed energy
- MID Annex D certification available

Energy analysers



EM26 96

- 3-phase energy meters with CT/VT connection
- Primary current input: 5 A
- Dimensions: 96 x 96 mm housing, 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 for measuring generated and consumed energy
- MID Annex D certification available

Web server



VMU-C EM

- Micro PC with Web-server, FTP and Web-Service capabilities
- Data and event logging capability
- Internal 4GB memory and 16GB SDHC card back-up memory
- Variables shown as graphs and tables
- All data exports on Excel compatible files
- 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
- Universal mobile 3G modem available

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

Timers



DBB01 / PBB01

- Dimensions: 22.5 mm Euronorm for DIN-rail or 36 mm plug-in version
- Multi voltage true delay on release timer
- Combined AC and DC power supply
- Repeatability: < 0.2%
- Approv/Marks: UL - CSA

MAIN FEATURES

- Time range 0.1 to 600s - capacitor powered
- 4 time ranges selectable by DIP-switches, knob time setting
- Output: 8 A SPDT or 8 A DPDT relay

Timers



DCB01 / PCB01

- Dimensions: 22.5 mm Euronorm for DIN-rail or 36 mm plug-in version
- Asymmetrical Recycler timer with 4 functions
- Combined AC and DC power supply
- Repeatability: < 0.2%
- Approv/Marks: UL - CSA

MAIN FEATURES

- Time range 0.1s to 100h
- 4 time ranges selectable by DIP-switches, knob time setting
- Output: 1 or 2 x SPDT relay

Timers



DAA51 / DMB51

- Dimensions: 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%
- Approv/Marks: UL - CSA - RINA

MAIN FEATURES

- Delay on operate/release; interval (manual/automatic start);
- Double interval; symmetrical recycler (ON or OFF first)
- Timing range from 0.1s to 100h

Our product range

CERTUS master modules



CMM

- 4 non-safety test outputs for sensor monitoring
- 2 non-safety programmable digital signal outputs
- 2 non-safety inputs for Start / Restart interlock and EDM
- CMC config memory card slot
- LOG file with last 5 conf. modifications
- 24 connectors in 22.5 mm
- Connection with exp. units via rear bus

MAIN FEATURES

- Also usable as a stand-alone device, able to control any other expansion unit
- 8 safety digital inputs
- 2 safety OSSD pairs with 400 mA output current

CERTUS I/O expansion units



C I/O

- Wide range of Input/Output, Input only or Output only (both OSSD and standard relay) expansion units to serve different application requirements
- In addition to the safety Inputs/Outputs, different models offer a variety of non-safety Inputs/Outputs such as: inputs for Start / Restart interlock and EDM, test outputs for sensor monitoring or programmable digital signalling

MAIN FEATURES

- Subject to the model selected the models offer the following eight combinations: 8I, 2O; 12I, 8 test O; 8I, 16I; 2 OSSD, 4 OSSD; 2 relay O, 4 relay O

CERTUS data/diag mod. + CERTUS bus transfer



DDC + CBT

- DDC: Expansion unit for Diagnostics and Data Communication:
 - C PFBUS - Profibus DP
 - C DNET - DeviceNET
 - C CAN - CANOpen
 - C EIP - Ethernet IP
 - C ECAT - EtherCAT
 - C PFNET - PROFINET
 - C OMMS - Universal Serial Bus
- Interface module allowing the connection of remote expansions via bus

MAIN FEATURES

- DDC: Allows communication with most common industrial Fieldbus systems
- Bus Transfer: Up to 100 m for each connection. Maximum 5 CBT expansions

Safety light curtains



SC2 / SC4

- Dimensions: 36.9 x 32.3 mm in lengths from 300 to 1500 mm for type 2, and from 150 to 1650 mm for type 4
- 24 VDC supply with two PNP transistor outputs
- IEC-61496-2 environment light rejection
- Approv./Marks: CE - cULus

MAIN FEATURES

- Selectable Manual/Automatic Restart, EDM and Anti-interference
- Compact body

Safety modules



NA1/3 / NL1/3 Series

- Safety modules for gate and emergency stop [NA1/3] and light curtain [NL1/3]
- 3 normally open safety outputs
- < 30ms response time
- IP40 protection for housing and IP20 protection for terminals
- Approv./Marks: CE - UL - CSA

MAIN FEATURES

- Safety category 4
- < 30 ms response time

Temperature controllers



PDI 409

- Dimensions: 48 x 48 x 98 mm, panel mount
- Power supply: 24 VAC/DC; 100-240 VAC
- Up to 3 configurable outputs: relay, 8 mA / 8 VDC for SSR
- Input signal: TC (J,K,S,I R), PTC, NTC, mV, PT100, 0/4-20 mA, 0-1 V, 0/1-5 V, 0/2-10 V
- Approv./Marks: CE - cURus

MAIN FEATURES

- Dual display digital controller, up to 4 configurable setpoint
- ON/OFF, single/double action PID or neutral zone control
- Fast autotuning and selftuning PID

Temperature controllers



PDI 720

- Dimensions: 72 x 72 x 97 mm, panel mount
- Power supply: 24 VAC/DC; 100-240 VAC
- Up to 3 configurable outputs: relay, 8 mA/8 VDC for SSR
- Input signal: TC (J, K, S, IR), PTC, NTC, mV, PT100, 0/4-20 mA, 0/1-5 V, 0/2-10 V
- Approv./Marks: CE - cURus

MAIN FEATURES

- Single display digital controller, up to 4 configurable setpoint
- ON/OFF, neutral zone or single/double action PID control with autotuning
- RS485 communication

Dupline® controllers



G3800

- Dupline® Master Channel Generator
- Provides power supply and communication for one Dupline® network
- Dimensions: 8 DIN modules
- Ports: 2 x RS485, 1 x RS232
- 4 digital inputs/4 digital outputs onboard

MAIN FEATURES

- Intelligent programmable functions for lighting, blinds etc.
- Trend logging of energy values, temperatures etc.
- Option to link several units to central SQL database via LAN/Internet
- Alarm notification and scheduling
- Modbus-RTU interface to external devices via RS485/RS232

Plastics Machinery

Our product range

1-phase DIN-rail power supplies

Metal enclosed power supplies

Low profile DIN-rail power supplies



SPD

- Output power from 5 W to 240 W
- Input 110/240 VAC single phase and DC
- Short circuit, overload and overvoltage protection
- PFC >100 W
- UL 1310 Class 2 output up to 90 W
- cULus, TUV and CCC approved

MAIN FEATURES

- Power supply OK output
- Parallel connection feature
- Spring, screw terminals or detachable connectors



SPPC

- Output power from 25 W to 800 W
- Input 110/240 VAC single phase
- Short circuit, overload and overvoltage protection
- PFC function available >75 W
- UL and CE approved

MAIN FEATURES

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



SPM

- Output power from 7.5 W to 100 W
- Input 110 / 240 V single phase and DC 120 to 370 V
- Short circuit, overload protection
- From -25 to +60°C operation w/out derating
- cULus, TUV and CCC approved

MAIN FEATURES

- UL 1310 Class 2 output < 91 W
- Adjustable output +/- 10%
- Low voltage LED indication

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