CARLO GAVAZZI
Automation Components

Solutions

Plastics Machinery

Solutions for Plastics Machinery
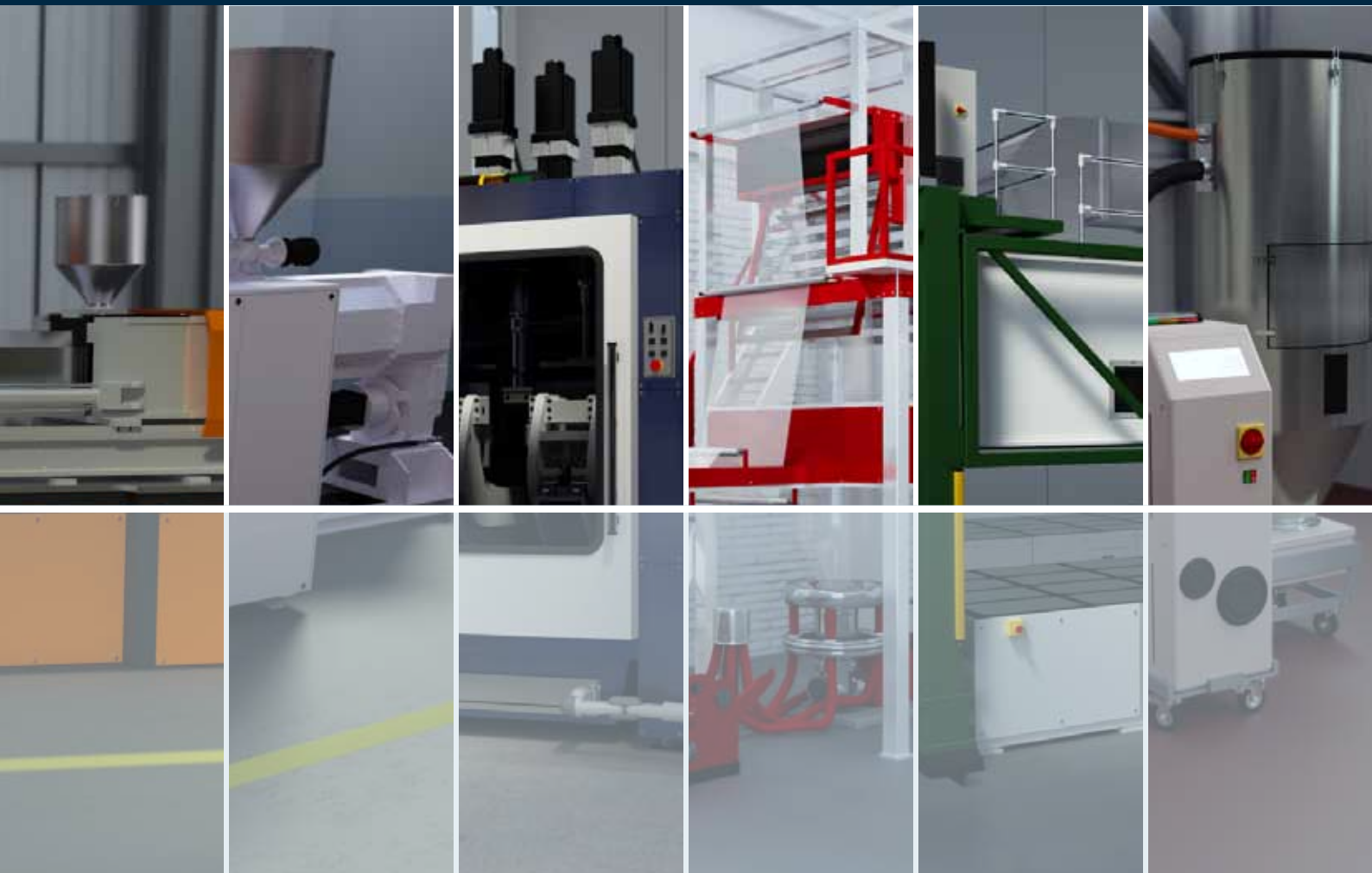
Injection machines	Extrusion machines	Blow moulding machines	Blown film extrusion machines	Thermoforming machines	Plastic dryers & Dosing systems

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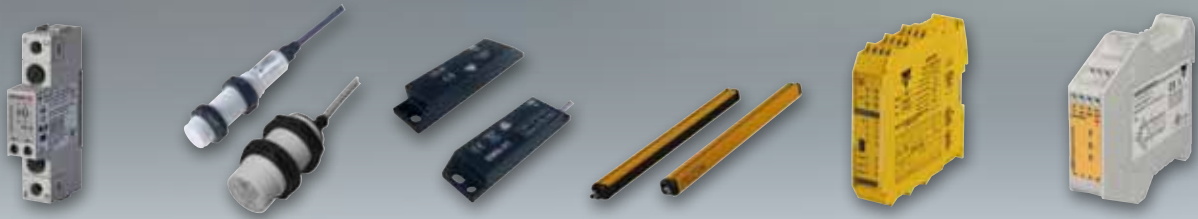
Carlo Gavazzi's patented Tripleshield™ capacitive sensors have become the standard all other manufacturers are measured against. Capacitive sensors will detect most materials, conductive and non conductive. This makes them ideal for level detection in raw plastic delivery systems. Carlo Gavazzi's ultrasonic,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

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Injection machines

Solid state switches	Capacitive sensors	Safety magnetic sensors	Safety light curtains	Configurable safety modules	Safety modules
RGS1A	CA18	SMS	SC2	CERTUS	NES
RGC1A	CA30	CLS	SC4		NLG
RM1A	EC30				

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 NES 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
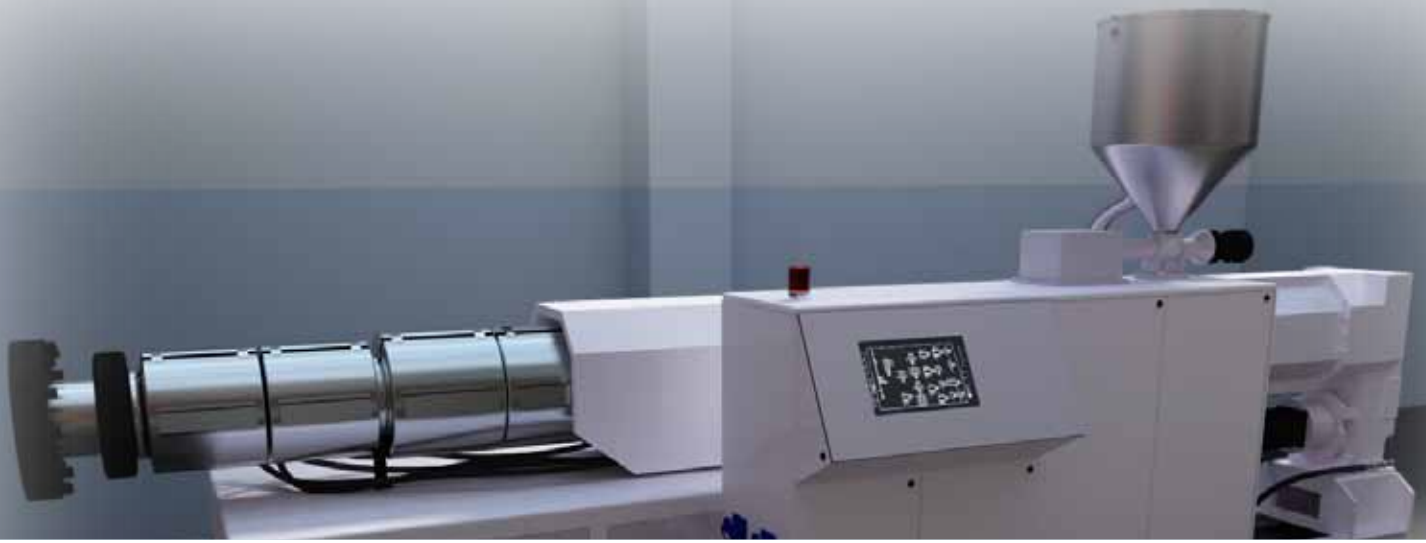
Solid state switches	Solid state switches	Solid state contactors	Capacitive sensors	Ultrasonic sensors	Switching power supplies
RGC1A	RGC1S	RGC3A	CA18	UA18	SPD
RGS1A	RGS1S	RGC2A	CA30	UA30	SPPC
RM1A			EC30		SPDM

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.

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Solid state switches	Inductive sensors	Photoelectric sensors	Monitoring relays	Web server	Safety light curtains
RGC1S RGS1S RGC1A	ICB12 ICB18 ICB30	PA18	DIA53 DPA51	VMU-C EM	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 RGC1S series offers the ideal solid state switching solution. The RGC1S 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 RGC1S 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.

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Blown film extrusion machines

Solid state switches	Ultrasonic sensors	Capacitive sensors	Safety magnetic sensors	Monitoring relays	Power transducers
RGC1A RGC1S RGS1S	UA18 UA30	CA18 CA30 EC30	SMS CLS	DIA53 DPA51	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.

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Thermoforming machines

Solid state switches	Ultrasonic sensors	Inductive sensors	Safety light curtains	Configurable safety modules	Energy analysers
RGC1F	UA18	ICB12	SC2	CERTUS	EM210
RGC1A	UA30	ICB18	SC4		EM26 96
RGC1P		ICB30			EM24 DIN

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 controller. The 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	Proportional controllers	Capacitive sensors	Photoelectric sensors	Energy analysers	Touch screen/ Datalogger
RM1A, RGC1A RGC2A, RGC3A	RGC1P RGC2P RGC3P	CA18 CA30	PD30ET	EM26 96 EM210 EM24 DIN	BTM-T4-24 BTM-T7-24

Carlo Gavazzi components integrate into 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 a viewing window in loaders of injection machines, extruders and blow moulding machinery.

Thanks to Tripleshield™ technology, Carlo Gavazzi capacitive sensors are protected against disturbance 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.

The new PD30ET photoelectric sensors are ideal for industrial environments and work perfectly even in the harshest conditions. The high-quality stainless steel housing guarantees maximum mechanical resistance. Retroreflective and polarized retroreflective versions are used to check the level of plastic granules in loaders.

Additionally, heaters for the drying of the plastic granules can be switched with the RM1A or RGC1A for 1-phase heaters or the RGC2A, RGC3A for 3-phase heaters. The RGC1P, RGC2P and RGC3P series offers the possibility of controlling the switching of the heater with an analog input (0-10 V or 4-20 mA) which can be fed directly to the SSR.

The touch screen BTM series reads the electrical measurement from Carlo Gavazzi energy meters or any other else energy meter. It shows the data as instantaneous values and/or depicts it in diagrams.

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Plastics Machinery

Our product range

1-phase solid state relays	1-phase solid state switches	1-phase solid state switches with current monitoring	1-phase solid state contactors

RAM1A / RM1A

- Dimensions 58.2 x 44.8 x 28.8 mm, 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]

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

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

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	1 and 3-phase proportional controllers	Capacitive sensors	Capacitive sensors

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

RGC1P / RGC2P / RGC3P

- Product width: 35 mm up to 70 mm, DIN or panel mount
- 1-ph with heatsink [RGC1P] or for panel mount [RGS1P], 3-ph with heatsink [RGC2P, RGC3P]
- Ratings: up to 660 VAC, 90A (1-ph), 75A/pole (2-ph), 65A/pole (3-ph)
- Control input: 0-20 mA, 4-20 mA, 12-20 mA, 0-10 VDC, 0-5 VDC, 1-5 VDC"
- Approv/Marks: CE - cULus - UR [RGS1P] - CSA [RGS1P]

MAIN FEATURES
- Selectable switching modes
- Integrated overvoltage protection
- Monitoring for SSR and load circuit malfunctions [RGC2P, RGC3P]

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

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

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Our product range

Photoelectric sensors	Photoelectric sensors	Ultrasonic sensors	Inductive sensors

PD30ET

- World standard housing style 11 x 31.5 x 21 mm
- Supply voltage: DC 4-wire
- Sensing distance: < 15 m
- Output: NPN/PNP NO+NC
- Sensor types: D, B, R, P and T
- Connectivity: Cable or M8 connectors
- Approv/Marks: CE - cULus - ECOLAB

MAIN FEATURES
- Stainless Steel housing AISI 316L
- Resistant to high-pressure washdown, aggressive cleaning agents.
- IP67, IP68, IP69K, NEMA type 1, 2, 4, 4x, 5, 6, 6P
- Protection: reverse polarity, short circuit and transients

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 finished 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

ICB12 / ICB18 / ICB30

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

MAIN FEATURES
- High precision and reliability thanks to the microprocessor technology
- Short-circuit and overload LED indication
- Laser engraved information on the front cap, permanently legible

Safety magnetic sensors	3-phase monitoring relays	3-phase monitoring relays	Current monitoring relays

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

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

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Our product range

Current transformers	Energy analysers	Energy analysers	Energy analysers

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

EM210

- 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
- Class B (kWh) acc. to EN50470-3
- 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

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
- Class B (kWh) acc. to EN50470-3
- 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

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
- Class B (kWh) acc. to EN50470-3
- 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	Timers	Timers	Timers

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

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

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

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

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Our product range

Power transducers	CERTUS configurable safety module	CERTUS configurable I/O expansion modules	CERTUS data and diagn. modules + bus transfer

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

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
- LOG file with 5 configuration modifications
- Connection with other 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 (400 mA Output)
- Certified to the highest safety levels: SIL 3, SILCL 3, PLe, Cat.4, CE, TUV, cULus

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
- Models offer a variety of non-safety Inputs/Outputs such as: inputs for Start/Restart interlock and EDM, test outputs

MAIN FEATURES
- The models offer eight combinations:
  - 8 Inputs 2 Outputs; 12 Inputs 8 test Outputs
  - 8 Inputs, 16 Inputs,
  - 2 OSSD, 4 OSSD
  - 2 relay Outputs, 4 relay Outputs

DDC + CBT

- DDC: Allows communication with most common industrial fieldbus systems:
  - 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
- Bus Transfer: Interface module allowing the connection of remote expansions via bus

MAIN FEATURES
- Bus transfer: up to 100 m for each connection. Maximum 5 CBT expansions. Ideal solution for the interconnection of the safety functions of several machines in a production line

CERTUS speed monitoring modules	Safety light curtains	Safety modules	Touch screen/ Datalogger

CES

- Exp. units to monitor speed (Ple): Zero speed, Max speed, Speed range Motion direction; rotation / translation.
- RJ45 for encoder connections and terminal blocks for connection of proximity (up to 2 proximity switches per module).
- Inputs frequency: Encoder up to 500 KHz (300 KHz for HTL), Proximity up to 5 KHz.

MAIN FEATURES
- The modules allow to configure up to 4 speed thresholds for each logic output (axis)
- Each module integrates two logic outputs configurable via the MSD and is capable to control up to two independent axes

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

NES / NLG Series

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

MAIN FEATURES
- Safety category 4
- < 30 msec response time
- Performance Level PLr:e in according with ISO 13849-1
- SILcl:3 in according with IEC 62061

BTM-T4-24 / BTM-T7-24

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

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

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Plastics Machinery

Our product range

1-phase DIN-rail power supplies	Metal enclosed power supplies	Low profile DIN-rail 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
- Approv/Marks: cULus, TÜV, and CCC

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
- Approv/Marks: UL and CE

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
- Approv/Marks: cULus, TÜV, and CCC

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

SPDM Plastic

- Output from 24W to 72W
- Low consumption
- Compact dimension
- Universal input voltage AC and DC
- Approv/Marks: CE, TÜV, UL and UL1310 Class 2

MAIN FEATURES
- Screw or spring loaded terminals
- DC OK LED indication

CARLO GAVAZZI Automation Components. Specifications are subject to change without notice. Illustrations are for example only.

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