CARLO GAVAZZI
Automation Components

CARLO GAVAZZI

Solutions

Packaging Machinery

Solutions for Packaging Machinery
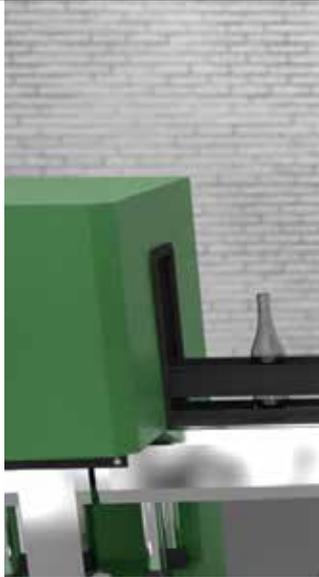
| Filling | Inspection | Wrapping and sealing | Labelling |

ABOUT CARLO GAVAZZI

Carlo Gavazzi Automation is an international group active in designing, manufacturing and marketing electronic equipment targeted at the global markets of industrial and building automation.

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

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

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

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

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

Our wide array of products includes sensors, monitoring relays, timers, energy management systems, 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 materials handling equipment, door and entrance control systems, lifts and escalators, as well as heating, ventilation and air-conditioning devices.

DESIGNED TO MEET MARKET REQUIREMENTS

The growing markets in consumer goods and packaged pharmaceuticals drive the development of packaging equipment. Filling and sealing machines, also labelling and coding devices, are important to ensure product safety throughout the supply chain.

To meet these needs, the industry has gradually introduced more automation and more sophisticated electronic controls.

In today's packaging production lines, the different stages are completed in minutes rather than in hours, as compared to years past.

In all types of packaging machinery - in all sectors of industry - each component must meet the strict requirements of the individual application.
This is to guarantee the continuity of production and the conformity of the packaged product to quality standards.

For many years, Carlo Gavazzi photoelectric, inductive and capacitive sensors have proven to be the best solution in applications for filling and checking.

In shrink wrapping applications, careful control of heating is essential for good results. Solid state relays are used to switch the heaters on and off in order to maintain the correct temperature.

The packaging industry also needs safety devices to guarantee the safety of the operators engaged in the work area, ensuring safe operation of the machines.

Carlo Gavazzi's comprehensive safety range includes products that detect intrusions within the non-safe zone/s and shut down the machinery in a controlled manner via standard and/ or configurable safety modules.

Carlo Gavazzi products all offer easy installation, high precision and long term reliability.

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Filling

Photoelectric sensors	Photoelectric sensors	Inductive sensors with IO-Link	Capacitive sensors with IO-Link	Ultrasonic sensors	Capacitive level sensors	Conductive level probes
PD30ET PD30C	PA18 PH18	ICB12..IO ICB18..IO ICB30..IO	CA18..IO CA30..IO	UA18 UA30	CD34CNF	CLH CLD

Carlo Gavazzi offers a complete range of automation components for the packaging industry.

In a bottling line UA ultrasonic sensors are used to verify that the appropriate level of a product is in the container before it is sealed and shipped.

Ultrasonic sensors are also used to measure the level of ingredients – either liquid or solid – in a container. The continual analog output signal allows for better control of the process. The levels of solid material, such as ground coffee, coffee beans or flour, are accurately detected using photoelectric sensors.

The PA18/PH18 sensors come with a mounting bracket which allows fast mounting and space saving. Axial, radial and square versions are available. An important benefit is that the conveyor can be cleaned much more easily.

For accurate control of the filling process, PD30 sensors provide an output signal when the product is at the appropriate fill level.

The PD30 stainless steel sensors are designed for wet as well as dry areas. The stainless steel housing and high-end plastic materials guarantee maximum resistance against IP69K and Ecolab cleaning processes.

The IO-Link ICB inductive sensors allow easy exchange of process data, remote configurations and events with simple and inexpensive 3-wire cabling, without needing to change the existing architecture. The ICB series, available from M12 to M30, can be completely configured to enable new functionalities such as the divider and speed control functions.

Inspection

Photoelectric sensors	Photoelectric sensors	Inductive sensors with IO-Link	Capacitive sensors with IO-Link	Ultrasonic sensors	Fiber optic amplifiers	Soft starters
PD30ET PD30C	PH18 PA18	ICB12..IO ICB18..IO ICB30..IO	CA18..IO CA30..IO	UA18 UA30	FA1	RSGD

Carlo Gavazzi products have many applications in the inspection-detection field. For bottling lines that have darker or less transparent bottles, PA18 through beam sensors can be used to detect the presence of the bottles. This family of products is from 40% to 60% smaller than existing housings.

The PD30 stainless steel (background suppression) sensors detect all colours on objects at the same distance from the sensor, and their durable design withstands daily cleaning processes. The specialised optics of the PD30CNG - combined with a reflector - are perfect for detecting clear bottles on a conveyor.

In some confectionery applications, it is necessary to detect if a cake decoration is present or properly positioned. The PD30 diffuse sensor recognises the decoration on top of the cake.

The fiber optic amplifier FA1 and the series of fiber optic cables FUR & FUT offer even more flexibility for sensing.

To verify that a bottle cap is present on the bottle a FA1 fiber optic amplifier with a fiber optic cable and lens are positioned above the bottles and programmed to detect the reflection from the bottle cap. Thanks to the IO-Link capacitive sensors advanced settings, it is possible to detect the presence and the content of packages. With two configurable switching signal channels, each IO-Link capacitive sensor works as two different sensors at the same time.
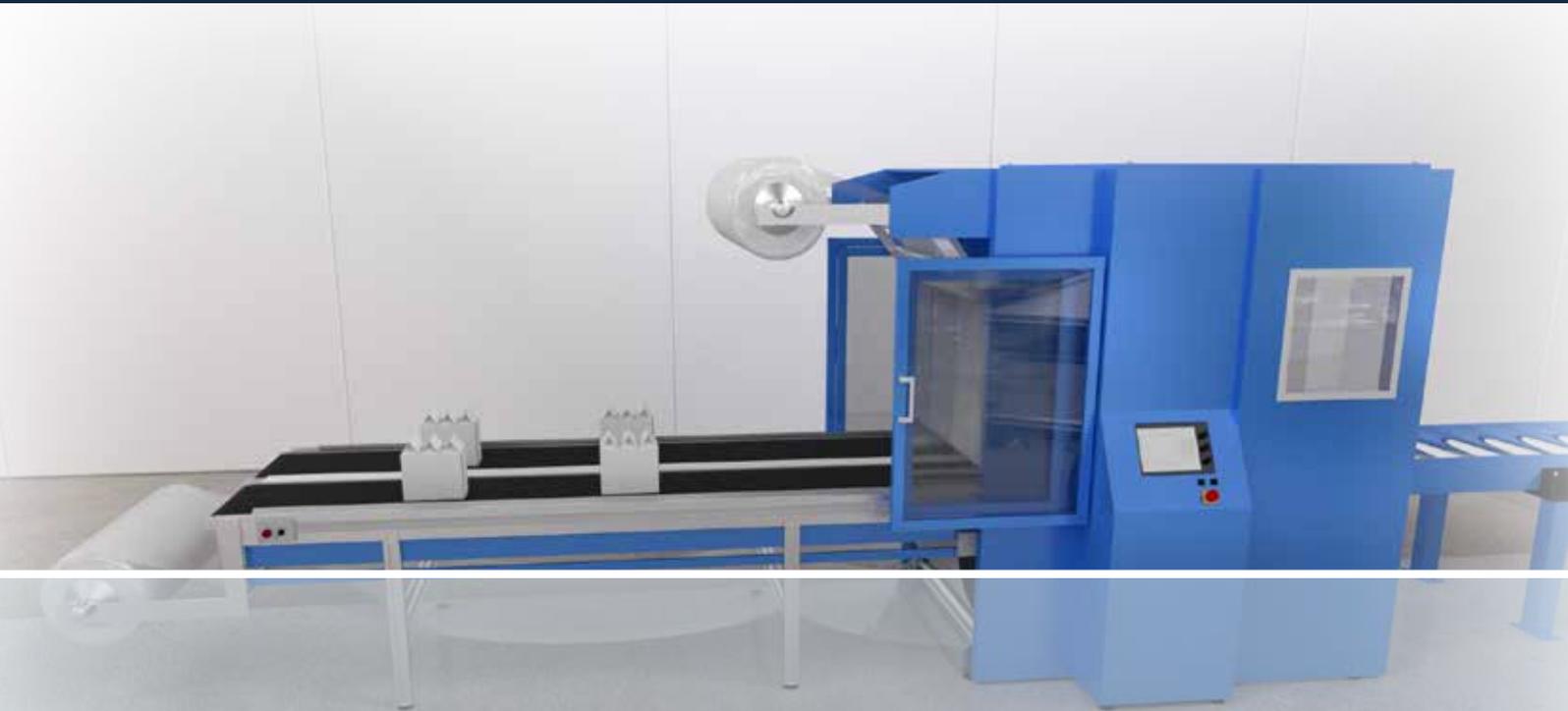
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Wrapping and sealing
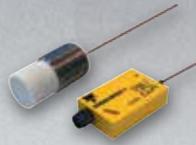
Photoelectric sensors	Photoelectric sensors	Capacitive sensors	Solid state switches	Solid state switches	3-phase solid state contactors
PD112	PD30CN	ECH	RGS RGC RM	RGC1S RGS1S	RGC3A RGC2A

Multiple bottles are often bundled together and shrink-wrapped. Carlo Gavazzi solid state relays (RM or RG series) allow fast switching of heaters that enable accurate control of the process temperature, thus maintaining an even shrink of the plastic wrap. Solid state solutions allow frequent switching without affecting the lifetime of the switch, unlike mechanical contactors. In order to verify that the shrink-wrap has been added, a PD30CNG clear object sensor is positioned to focus on the level of the bottle necks. If the shrink-wrap is present, the clear object sensor will have a continuous output as the package passes by.

Diffuse reflective photoelectric sensors with long detecting distance (PD112)

detect goods on a pallet to ensure that wrapping is stopped at the required height.

In hot-melt heating systems the high temperature ECH sensors have proven their capability and reliability.

Other applications include automatic continuous processes of thermoforming,

filling and sealing. The RG range offers a wide variety of solutions, starting from solid state switching of heaters to more sophisticated solutions that, apart from the switching function, integrate monitoring features that are able to detect load and system malfunctions to guarantee a reliable thermal process.

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Labelling

Fiber optic amplifiers	Photoelectric sensors	Photoelectric fork sensors	Timers
FA1	**PC50**	**PF80**	**DAA51** **DMB51**

Once a container is filled, the next step is to apply the appropriate label.
A fiber optic amplifier FA1 is used to detect the presence of a mark on a bottleneck label, which confirms that the bottle is in the correct position for the main label to be applied.
These sensors also detect the presence of security bands which are required on many bottles and containers. They recognise the difference between the security band and the bottle cap.
The FA1 is compact and highly intuitive for easy setup. It is equipped with two 4-digit LED displays for clear and concise reading. An adjustable signal level, selectable response time and different timer functions provide full flexibility. Coupled with the robust and complete range of fiber optic cables FUR & FUT, this amplifier can be used in many applications.
Detection of labels, marks and double sheets, as well as holes and edges, are typical applications for the PF80 fork sensor.
Precise control of all labels is an important part of the packaging process. The surfaces of the labels are often reflective and the photoelectric proximity sensors provide the necessary sensitivity for maximum reliability.

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Our expertise

Configurable safety modules	Multifunction safety module	Electromagnetic safety interlocks	Photoelectric sensors	Photoelectric sensors
CMM C I/O CES	CM22D0A CM40D0A CM30D1A	ESI	PD30ET PD30C	PA18 PH18

Carlo Gavazzi's safety devices are used to prevent access to dangerous areas, until the machines are completely stopped. For example, the 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 such as: safety light curtains, photocells, emergency stops, two-hand controls, mechanical switches, laser scanners and safety mats.

Protection of the operators from dangerous moving parts of the machine is ensured by using our safety module CM22D0A, able to monitor multiple safety functions of industrial machinery.

With the configuration of the right delay time, by means of the hex-switch, and in combination with our electromagnetic safety interlock ESI, we can guarantee the safety of the operator, as the machinery remains operative for a short time after the stop signal, due to mechanical inertia of the moving parts. Around the packaging machine photoelectric sensors (PD30, PA18 and PH18) are widely used to detect the position of the items to be packed and/or to detect the position of the carton box.

When packaging products into a carton box, the boxes are stacked up unfolded on one side of the machine. Two photoelectric sensors are used:

one to detect that there are enough unfolded carton boxes in the pipeline, the other to detect when an unfolded carton box is ready to be fed into the packaging machine. If this box is not present then the stack of unfolded carton boxes is pushed forward until the sensor detects the first box.

Safety devices and energy efficiency
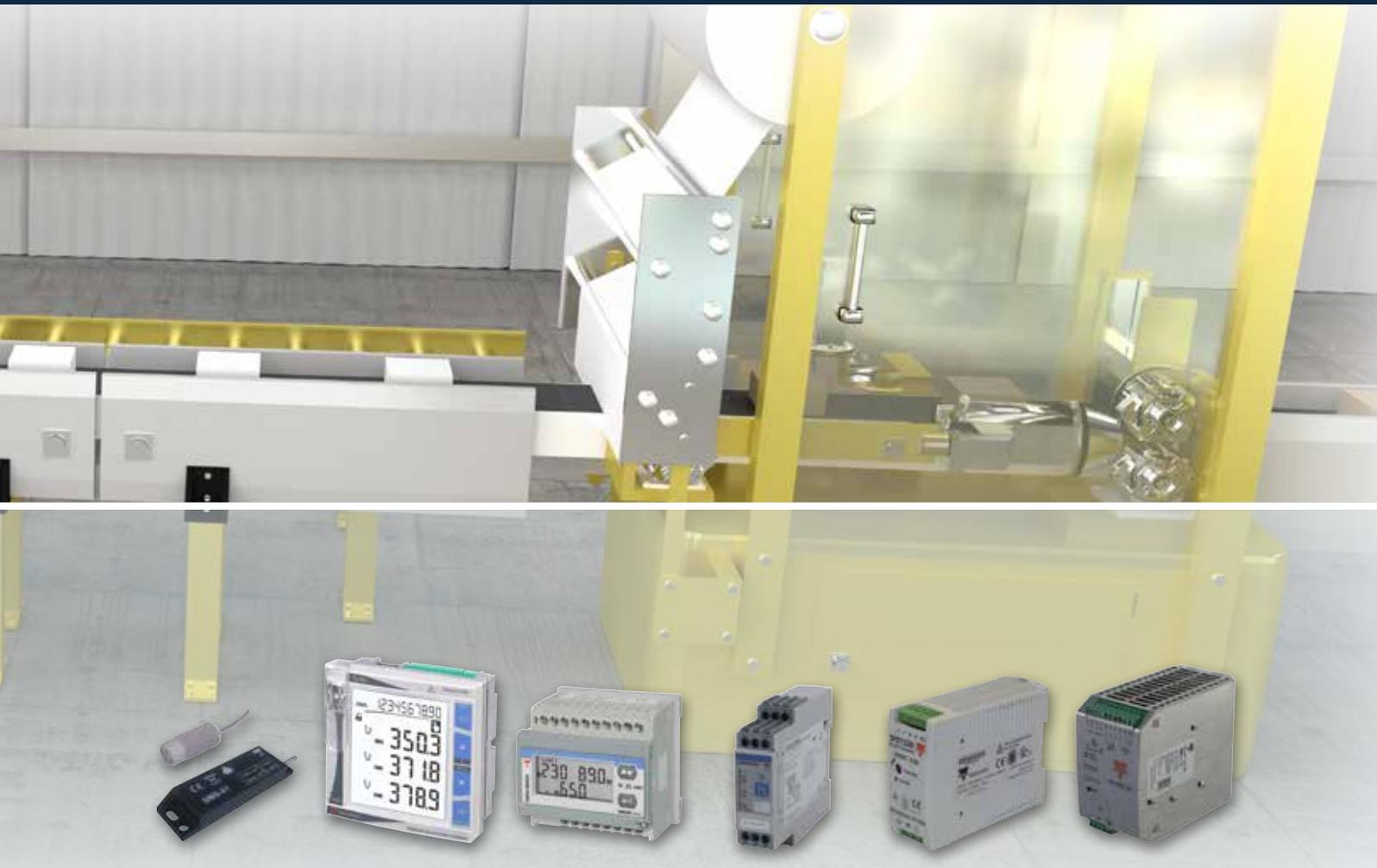
Safety magnetic switches	3-phase power analysers	Energy analysers / transducers	Monitoring relays	Switching power supplies	DC UPS
SMS **CLS**	**WM20**	**EM210** **ET112** **ET340**	**DPD02** **DPA01/DPB01** **DIA/DIB/DTA**	**SPD** **SPPC** **SPM**	**SPUBC** **SPUC**

Our safety magnetic sensors (SMS, CLS) are particularly designed for the safety gates that allow entry to machines with dangerous movements. Carlo Gavazzi offers a vast array of products to improve energy efficiency and to ensure the monitoring of entire processes.

Energy management components provide vital information for operators to identify consumption trends and take appropriate action. The WM20 power analyser, the EM210 energy analyser or the ET340 energy transducer can monitor all the main parameters of an electric line or load.

DPA01 monitoring relays monitor phase sequence and phase loss of motors: DPD02 and DPB01 also monitor mains over or under voltages. Overloads can be prevented with the DIA and DIB current monitoring relays whilst the DTA04 relays detect and disable motors in case of overheating. Carlo Gavazzi timers - available in four different housings (standard DIN-rail, Plug-in, 48x48 and MiniD housing) - provide correct and reliable solutions for every application.
The SPUC and the SPUBC modules guarantee power supply and electrical continuity in case of mains failure.

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Packaging Machinery

Our product range

Photoelectric sensors	Photoelectric sensors	Photoelectric sensors

PA18 / PH18

- Standard M18 cylindrical housing
- Power supply: 10 to 30 VDC
- Separate models available for NPN or PNP outputs
- Range: 1 m (Axial), 0.8 m (Radial)
- Sensitivity adjustment by potentiometer
- Approvals/Marks: CE - cULus - ECOLAB

MAIN FEATURES
- Complying with the requirements of ECOLAB, IP67, IP69K
- Approved according to UL508
- Diagnostic LED indication (green and yellow LED)
- Short circuit, reverse polarity and overload protection

PD30C

- World standard housing style 10.8 x 30 x 20 mm
- Power supply: 10 to 30 VDC
- NPN or PNP transistor output
- Sensitivity adjustment by Teach-in or by potentiometer
- Approvals/Marks: CE - cULus (UL508, CSA C22.2)

MAIN FEATURES
- Background suppression version, with accurate detection and PointSpot light
- Long detecting distances
- Protection: reverse polarity, short circuit and transients

PD30ET

- World standard housing style 11 x 31.5 x 21 mm
- Supply voltage: DC 4-wire
- Output: NPN/PNP NO+NC
- Sensor types: D, B, R, P and T
- Connectivity: Cable or M8 connectors
- Approvals/Marks: CE - cULus (UL508, CSA C22.2) - ECOLAB

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

Photoelectric sensors	Photoelectric sensors	Fiber optic amplifiers

PC50

- Dimensions: 17 x 50 x 50 mm
- Sensing distance up to 20 m
- Modulated infrared light
- Make and break switching function selectable
- Cable and plug version
- Approvals/Marks: CE - UL - CSA

MAIN FEATURES
- Adjustable sensitivity
- High EMC immunity
- Protection: reverse polarity, short circuit and transients

PD112

- Dimensions: 25 x 45 x 112 mm
- Long range background suppression (BGS) sensor
- Power supply receiver: 10 to 30 VDC
- NPN and PNP NO or NC output
- Emitter with Mute Input for testing sensor fucntion
- 2.5 m sensing distance

MAIN FEATURES
- Light beam approved to Safety Category 2
- UL325, UL508, EN12445, EN12453, EN12978
- Long detection range on black objects

FA1

- 2 x 4 digit LED display for signal and threshold level
- Easy setup 3 way adjustment switch
- Selectable response time, timing delay functions
- 100 mA NPN PNP NO NC Switching

MAIN FEATURES
- Varieties of through beam and reflective fiber optic cable
- Ø 0.25, 0.5 or 1.0 mm inner fiber diameter for different applications
- Extra overmoulding on fiber units for better fiber curvature protection

Our product range

Photoelectric fork sensors	Smart configurator for IO-Link sensors	Inductive sensors with IO-Link

PF80

- Dimensions: 12 x 37.5 x 80 mm. Slot width 3 mm
- Teach-In: push button or by wire
- Rated operational voltage 10-30 VDC
- Aluminium housing
- Approvals/Marks: CE

MAIN FEATURES
- High speed detection
- Detection of transparent material
- Detecion of labels, marks and double sheets

SCTL55

- Handheld device for IO-Link sensors
- 5.5" HD touch screen display
- Automatic IODD file download via Wi-Fi
- High capacity rechargeable battery
- M8 3-wire, M8 4-wire and M12 connectors
- Approvals/Marks: CE, FCC
- IO-Link v1.1

MAIN FEATURES
- Intuitive GUI with dedicated App for a simplified user experience.
- Access to an advanced diagnostic with the possibility to verify operating hours, number of detections, operating cycles, alarms and quality of run of the sensor connected.
- Easy management of operating parameters such as switchpoint mode, logic and timing functions, sensing distance, output configuration (PNP/NPN/push-pull, NO/NC)

ICB12..IO / ICB18..IO / ICB30..IO

- Nickel-plated brass M12, M18 or M30 cylindrical threaded barrel housings
- Sensing distance from 4 mm to 22 mm
- Output functions: programmable NO or NC, NPN, PNP or push-pull
- 2 meter oil resistant PVC cable or M12 plug version
- Approvals/Marks: CE, cULus
- IO-Link V1.1

MAIN FEATURES
- Operating temperature: -25°C to +70°C (-13° to +158°F), and -40°C to +70°C (-40° to +158°F) for M12-plug version
- Adjustable sensing distance and hysteresis and configurable output
- Up to 2 kHz operating frequency

Conductive level controllers / probes	Capacitive level sensor	Capacitive sensors

CLD / CLH

- 17.5 mm slim housing, 22.5 mm & 35 mm housing available
- Multiple filling and emptying functions
- 24-240 VAC/DC [CLD2EB1BU24]/ 24 VDC, 115 VAC, 230 VAC
- Flexible modular probes up to 5 electrodes [CLH5]
- Extendable probes for longer length

MAIN FEATURES
- Wide operational supply voltage range
- Slim compact housing
- Wide sensitivity adjustment 250 Ω to 500 KΩ
- Cascading amplifiers for more levels [CLP2FA]

CD34CNF

- Dimensions 8 x 16 x 34 mm
- Power supply: 10-30 DC
- Output: NPN / PNP / NO or NC
- Power supply from 208 to 480 VAC (+/- 15%)
- Connectivity: Cable or M8 4-pin Pig-tail
- Approvals/Marks: CE - cULus - ECOLAB

MAIN FEATURES
- Detecting water-based liquids (up to 50 mS)
- Automatic adaption to tank wall thickness
- Eliminating influence from build-up or foam
- IP65, 66, 67, 68, 69K NEMA type 1, 2, 4, 4X, 5, 12
- Protection: reverse polarity, short circuit and transients
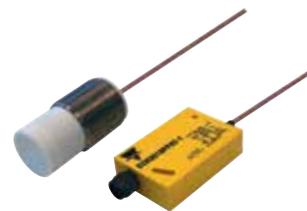
ECH

- Sensor diameter: M30, teflon and stainless steel
- Adjustable sensing distance: 4 to 15 mm, factory set for 10 mm
- Output: transistor NPN or PNP, make & break switching
- Power supply: 10 to 40 VDC

MAIN FEATURES
- Provided with a separate teflon sensor head in M30 for temperatures within the range of -196°C to +180°C
- Protection: reverse polarity, short circuit, transients

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Our product range

Capacitive sensors	Capacitive sensors with IO-Link	Ultrasonic sensors

CA18 / CA30

- 4th generation TRIPLESHIELD™ technology
- Dimensions: M18 / M30
- Plastic housing DC versions
- Sensing distance up to 30 mm
- Approvals/Marks: CE - cULus - ECOLAB

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

CA18..IO / CA30..IO

- Dimensions: M18/M30 (Plastic)
- 4th generation TRIPLESHIELD™ Technology
- IO-Link communication with timer, diagnostics and logic functions
- Sensing distance up to 30 mm
- Approvals/Marks: CE, cULus approved

MAIN FEATURES
- High EMC immunity
- ESD ratings up to 40 KV
- Sensing face temperature up to 120°C
- Best immunity towards Inverters

UA18 / UA30

- Dimensions: M18, M30
- Ultrasonic sensors with integrated amplifier providing a digital and/or analog output
- Housing material: plastic and stainless steel
- Sensing distance up to 6 m
- Approvals/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

PCB mount solid state relays	1-phase solid state relays	1-phase solid state switches

RP1

- Dimensions: 25.4 x 43 x 10.5 mm
- Operational voltage range: 24-480 VAC
- Rated operational current: 3, 5, 5.5, 10 AAC
- Control input ranges: 4-32 VDC, 16-32 VAC
- Approvals/Marks: CE - cURus - VDE [RP1...3,5,6]

MAIN FEATURES
- Zero cross or random switching
- 4 kV isolation between input & output
- Accessories for DIN mount option available

RM1.. / RAM1..

- Dimensions: 58.2 x 44.8 x 28.8 mm, panel mount
- Rated operational voltage: up to 660 VAC
- Rated operational current: 25, 50, 75, 100, 125 AAC
- Control input ranges: 4-32 VDC, 20-280 VAC
- Approvals/Marks: CE - EAC - cURus - CSA - CCC - VDE [RAM1]

MAIN FEATURES
- Zero cross or random switching
- Low noise emission - EN55011 class B conformance [RM1A..L]
- Integrated over-voltage protection [RM1]

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)
- Approvals/Marks: CE - EAC - VDE - cULus [RGC] - cURus [RGS] - CSA [RGS] - GL (RGC up to 30 AAC)

MAIN FEATURES
- Integrated heatsink [RGC1..], without heatsink [RGS1..]
- 100 kA short circuit current rating
- Optional overtemperature protection

Our product range

1-phase solid state switches with current monitoring	3-phase solid state contactors	3-phase general purpose soft starters

RGS1S.. / RGC1S..

- Product width: 22.5 mm up to 70 mm, DIN or panel mount
- Ratings: up to 660 VAC, 90 AAC, 18000 A²s
- Integrated output overvoltage protection
- Control input range: 4-32 VDC
- Approvals/Marks: CE - EAC - 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

RGC3A.. / RGC2A..

- Product width: up to 70 mm, DIN-rail mounting
- Ratings: up to 660 VAC 75 AAC/pole [RGC2], 65 AAC/pole [RGC3] @ 40°C
- Motor ratings up to 11 kW @ 400 VAC, 25 HP @ 600 VAC
- Control input range: 5-32 VDC, 20-275 VAC (24-190 VDC)
- Approvals/Marks: CE - cULus - EAC - CCC

MAIN FEATURES
- 3-phase; 2-pole [RGC2] or 3-pole [RGC3] switching
- Monitoring for SSR and load circuit malfunction [RGC..M]
- 100 kA short circuit current rating

RSGD

- Operational voltage range: 187-440 VAC, 187-660 VAC
- Operational current range: 12 AAC up 100 AAC
- Control voltage: 24 VAC/DC, 110-400 VAC
- Serial communication (Modbus 2-wire) (RSGD 75 mm models)
- Approvals/Marks: cULus - CCC - EAC

MAIN FEATURES
- Easy to use and set-up
- Self-learning algorithm to adapt to different loads
- Auxiliary relays for top of ramp and alarms

Variable frequency drives	Safety magnetic sensors and units	Electromagnetic safety interlocks

RVLF

- Compact dimensions, with ratings up to 11 kW
- Inbuilt V/F and SLV control
- Drive voltage ratings: 100-120 VAC; 200-240 VAC; 380-480 VAC
- Drive kW rating: - 0.4 kW - 11 kW (0.5 HP - 15 HP)
- Approvals/Marks: CE - cULuS

MAIN FEATURES
- Ease of use with minimal settings
- Precision low speed control with SLV algorithms
- Inbuilt filters on most models to reduce harmonics disturbance

SMS / CLS

- Rectangular or cylindrical housing
- Several output configurations available
- Up to 175 VDC switching voltage
- 350 mA maximum output
- Up to 10 W switching power
- IP67 protection

MAIN FEATURES
- Rugged plastic or stainless steel housing
- Operating temperature: -25°C to 70°C
- Cable output or M12 pigtail connection
- Cylindrical or rectangular safety magnets

ESI

- Improving safety for applications requiring access to remain closed and locked until potential hazards have stopped or come to a predetermined safe state
- Standards compliance. SIL 3 in accordance with EN 62061, PL e in accordance with EN ISO 13849-1, interlock type 2 in accordance with EN ISO 14119
- Approvals/Marks: CE - cULus - IMQ

MAIN FEATURES
- Ensures protection in inertia machinery
- Protects machines from interruptions
- Prevents entry into a dangerous area until the unlock signal
- Manual unlock device for emergency
- Block controlled by solenoid

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Our product range

Configurable safety modules	Configurable I/O expansion modules	Speed monitoring 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
- 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, PL e, 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

CES

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

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

Multifunction safety module	Multifunction safety module	Multifunction monitoring relays with NFC

CM22D0A

- Up to 4 OSSD safety outputs
- 2 OSSD auxiliary outputs
- Safety solution for enhanced safety and high protection in inertia machinery
- Compact dimensions, 1 DIN, W x H x D: 18 x 90 x 63 mm

MAIN FEATURES
- Configurable pre-set delayed safety outputs, set via the hex-switch
- Can be used in applications with: e-stop, e-gate, limit switch, non-contact switch, safety light curtains, safety light beam, safety mat
- Cat.4 PL e (ISO 13849-1), SIL 3 (IEC 62061), SILCL 3 (IEC 61508)
- Approval by TUV
- Manual or automatic start selectable

CM40D0A / CM30D1A

- 4 OSSD safety outputs [CM40D0A]
- 3 OSSD safety outputs + 1 auxiliary output [CM30D1A]
- Safety solution for basic machines, equipment and production lines
- Compact dimensions, 1 DIN, W x H x D: 18 x 90 x 63 mm

MAIN FEATURES
- Can be used in applications with: e-stop, e-gate, limit switch, non-contact switch, safety light curtains, safety light beam, safety mat
- Cat.4 Ple (ISO 13849-1), SIL 3 (IEC 62061), SILCL 3 (IEC 61508)
- Approval by TUV
- Manual or automatic start selectable

DPD02

- Dimensions: 22.5 mm DIN-rail mounting enclosure
- 120 VAC to 480 VAC Delta & Star Mains
- Voltage and frequency monitoring
- 2 SPDT 8A relay outputs
- Approvals/Marks: UL - CSA - CCC

MAIN FEATURES
- NFC programming
- Up to 10 configurable setpoints
- Apps for Android and Windows PC programming

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Our product range

3-phase monitoring relays	Motor thermistor relays	Current monitoring relays

DPA01 / DPB01

- Dimensions: 81 x 22.5 x 99.5 mm DIN-rail housing
- 3-phase monitoring relay for phase sequence and phase loss [DPA01]
- TRMS 3-phase over and under voltage, phase sequence and phase loss monitoring relays [DPB01]
- Approvals/Marks: CE - UL - CSA

MAIN FEATURES

- Selection of measuring range by DIP-switches [DPB01]
- Detects when all phases are present and have the correct sequence [DPA01]
- LED indication for relay, alarm and power supply ON

DTA04

- Dimensions: 22.5 DIN Housing
- Motor thermistor relay
- PTC Open and PTC Short detection
- Universal power supply from 24 V to 240 VAC/DC
- Approvals/Marks: UL and CE approved

MAIN FEATURES

- Multicolour LED with alarm discrimination
- Auto or manual, local or remote reset, test function
- Ready for reset function

DIA53

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

MAIN FEATURES

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

Current monitoring relays and Current transformers	3-phase power analysers	Energy analysers

DIB01 / A82

- Dimensions: 81 x 22.5 x 99.5 mm DIN-rail housing
- TRMS AC/DC over or under current monitoring relay
- Direct measuring or through current transformer [A82]
- A82: true RMS AC current metering transformer for 25, 50, 100, 250 or 500 AAC
- Approvals/Marks: UL - CSA

MAIN FEATURES

- Programmable latching or inhibiting at set level
- LED indication for relay, alarm and power supply ON
- A82: easy interface to PLC or setpoint relays

WM20

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

MAIN FEATURES

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

EM210

- 3-phase energy meters with CT connection
- Solid or split-core 5 A CT
- Dimensions: 4 DIN modules or 72 x 72 mm 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
- Approvals/Marks: CE - cULus

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

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Packaging Machinery

Our product range

1 and 3-phase energy transducers	Timers	DIN-rail switch mode power supplies

ET112 / ET340

- 2 DIN size; DIN-rail mounting [ET112]
- 3 DIN size; DIN-rail mounting [ET340]
- Measurement of voltage, current, power, power factor and frequency
- Bi-directional energy metering, 2 tariffs, cl. 1 (EN62053-1)
- Measuring inputs: 115/230 VAC, 100 A [ET112], single phase
- Measuring inputs: 208 to 400 VLL VAC, 65 A [ET340], 3-phase

MAIN FEATURES
- Self-powered
- RS485 Modbus port (screw, 2x RJ45)
- Optical port
- Sealable terminal covers
- Approvals/Marks: CE

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%
- Approvals/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

SPD

- DIN-rail mounting
- 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: CE - TÜV - cULus - UL1310 Class 2 (<92W), ISA12.12.1 Class 1, Div 2

MAIN FEATURES
- Power Factor Correction (PFC)
- Parallel connection
- DC OK output

Low profile power supplies	Metal enclosed power supplies	DC UPS

SPM

- Compact DIN-rail housing - 1/3/4/5 Din width
- Universal input from 90-264 VAC
- Integrated short circuit and overload protection with built-in input filters
- High effiency of up to 89%
- Approvals/Marks: CE - cULus - TUV

MAIN FEATURES
- Compact design for installation within distribution box with ratings up to 100 W
- Intuitive visual and electrical indications
- Selected models comes with UL 1310 Class 2 classification

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
- Approvals/Marks: CE - UL

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

SPUC / SPUBC

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

MAIN FEATURES
- Power supply independent from charger [SPUBC], to be used in addition to 12 or 24 V power supply [SPUC]
- Remote indication for battery operation and battery low
- "Start from battery" and "Empty battery charging" features [SPUBC]

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

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CARLO GAVAZZI

OUR SALES NETWORK IN EUROPE

AUSTRIA
Carlo Gavazzi GmbH
Ketzergasse 374,
A-1230 Wien
Tel: +43 1 888 4112
Fax: +43 1 889 10 53
office@carlogavazzi.at

BELGIUM
Carlo Gavazzi NV/SA
Mechelsesteenweg 311,
B-1800 Vilvoorde
Tel: +32 2 257 4120
Fax: +32 2 257 41 25
sales@carlogavazzi.be

DENMARK
Carlo Gavazzi Handel A/S
Over Hadstenvej 40,
DK-8370 Hadsten
Tel: +45 89 60 6100
Fax: +45 86 98 15 30
handel@gavazzi.dk

FINLAND
Carlo Gavazzi OY AB
Ahventie, 4 B
FI-02170 Espoo
Tel: +358 9 756 2000
myynti@gavazzi.fi

FRANCE
Carlo Gavazzi Sarl
Zac de Paris Nord II, 69, rue de la Belle Etoile,
F-95956 Roissy CDG Cedex
Tel: +33 1 49 38 98 60
Fax: +33 1 48 63 27 43
french.team@carlogavazzi.fr

GERMANY
Carlo Gavazzi GmbH
Pfnorstr. 10-14
D-64293 Darmstadt
Tel: +49 6151 81000
Fax: +49 6151 81 00 40
info@gavazzi.de

GREAT BRITAIN
Carlo Gavazzi UK Ltd
4.4 Frimley Business Park,
Frimley, Camberley, Surrey GU16 7SG
Tel: +44 1 276 854 110
Fax: +44 1 276 682 140
sales@carlogavazzi.co.uk

ITALY
Carlo Gavazzi SpA
Via Milano 13,
I-20020 Lainate
Tel: +39 02 931 761
Fax: +39 02 931 763 01
info@gavazziacbu.it

NETHERLANDS
Carlo Gavazzi BV
Wijkermeerweg 23,
NL-1948 NT Beverwijk
Tel: +31 251 22 9345
Fax: +31 251 22 60 55
info@carlogavazzi.nl

NORWAY
Carlo Gavazzi AS
Melkeveien 13,
N-3919 Porsgrunn
Tel: +47 35 93 0800
Fax: +47 35 93 08 01
post@gavazzi.no

PORTUGAL
Carlo Gavazzi Lda
Rua dos Jerónimos 38-B,
P-1400-212 Lisboa
Tel: +351 21 361 7060
Fax: +351 21 362 13 73
carlogavazzi@carlogavazzi.pt

SPAIN
Carlo Gavazzi SA
Avda. Iparraguirre, 80-82,
E-48940 Leioa (Bizkaia)
Tel: +34 94 480 4037
Fax: +34 94 431 6081
gavazzi@gavazzi.es

SWEDEN
Carlo Gavazzi AB
V:a Kyrkogatan 1,
S-652 24 Karlstad
Tel: +46 54 85 1125
Fax: +46 54 85 11 77
info@carlogavazzi.se

SWITZERLAND
Carlo Gavazzi AG
Verkauf Schweiz/Vente Suisse
Sumpfstrasse 3,
CH-6312 Steinhausen
Tel: +41 41 747 4535
Fax: +41 41 740 45 40
info@carlogavazzi.ch

OUR SALES NETWORK IN THE AMERICAS

USA
Carlo Gavazzi Inc.
750 Hastings Lane,
Buffalo Grove, IL 60089, USA
Tel: +1 847 465 6100
Fax: +1 847 465 7373
sales@carlogavazzi.com

CANADA
Carlo Gavazzi Inc.
2660 Meadowvale Boulevard,
Mississauga, ON L5N 6M6, Canada
Tel: +1 905 542 0979
Fax: +1 905 542 22 48
gavazzi@carlogavazzi.com

MEXICO
Carlo Gavazzi Mexico S.A. de C.V.
Circuito Puericultores 22, Ciudad Satelite
Naucalpan de Juarez, Edo Mex. CP 53100
Mexico
T +52 55 5373 7042
F +52 55 5373 7042
mexicosales@carlogavazzi.com

BRAZIL
Carlo Gavazzi Automação Ltda.Av.
Francisco Matarazzo, 1752
Conj 2108 - Barra Funda - São Paulo/SP
Tel: +55 11 3052 0832
Fax: +55 11 3057 1753
info@carlogavazzi.com.br

OUR SALES NETWORK IN ASIA AND PACIFIC

SINGAPORE
Carlo Gavazzi Automation Singapore Pte. Ltd.
61 Tai Seng Avenue #05-06
Print Media Hub @ Paya Lebar iPark
Singapore 534167
Tel: +65 67 466 990
Fax: +65 67 461 980
info@carlogavazzi.com.sg

MALAYSIA
Carlo Gavazzi Automation (M) SDN. BHD.
D12-06-G, Block D12,
Pusat Perdagangan Dana 1,
Jalan PJU 1A/46, 47301 Petaling Jaya,
Selangor, Malaysia.
Tel: +60 3 7842 7299
Fax: +60 3 7842 7399
sales@gavazzi-asia.com

CHINA
Carlo Gavazzi Automation
(China) Co. Ltd.
Unit 2308, 23/F.,
News Building, Block 1,1002
Middle Shennan Zhong Road,
Shenzhen, China
Tel: +86 755 83699500
Fax: +86 755 83699300
sales@carlogavazzi.cn

HONG KONG
Carlo Gavazzi Automation
Hong Kong Ltd.
Unit 3 12/F Crown Industrial Bldg.,
106 How Ming St., Kwun Tong,
Kowloon, Hong Kong
Tel: +852 23041228
Fax: +852 23443689

OUR COMPETENCE CENTRES AND PRODUCTION SITES

DENMARK
Carlo Gavazzi Industri A/S
Hadsten

CHINA
Carlo Gavazzi Automation (Kunshan) Co., Ltd.
Kunshan

MALTA
Carlo Gavazzi Ltd
Zejtun

ITALY
Carlo Gavazzi Controls SpA
Belluno

LITHUANIA
Uab Carlo Gavazzi Industri Kaunas
Kaunas

HEADQUARTERS

Carlo Gavazzi Automation SpA
Via Milano, 13
I-20020 - Lainate (MI) - ITALY
Tel: +39 02 931 761
info@gavazziautomation.com

CARLO GAVAZZI
Automation Components

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www.gavazziautomation.com

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