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.
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.
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.

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.

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.
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 PD30CN 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.
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.
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. If this box is not present then the stack of unfolded carton boxes is pushed forward until the sensor detects the first box.
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.

<table>
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<th>Safety magnetic switches</th>
<th>3-phase power analysers</th>
<th>Energy analysers / transducers</th>
<th>Monitoring relays</th>
<th>Switching power supplies</th>
<th>DC UPS</th>
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</thead>
<tbody>
<tr>
<td>SMS</td>
<td>WM20</td>
<td>EM210</td>
<td>DPD02</td>
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<td></td>
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<td></td>
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<td>ET340</td>
<td>DIA/DIB/DTA</td>
<td>SPM</td>
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</table>

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.
Packaging Machinery

Our product range

<table>
<thead>
<tr>
<th>Photoelectric sensors</th>
<th>Photoelectric sensors</th>
<th>Photoelectric sensors</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PA18 / PH18</strong></td>
<td><strong>PD30C</strong></td>
<td><strong>PD30ET</strong></td>
</tr>
<tr>
<td>Standard M18 cylindrical housing</td>
<td>World standard housing style 10.8 x 30 x 20 mm</td>
<td>World standard housing style 11 x 31.5 x 21 mm</td>
</tr>
<tr>
<td>Power supply: 10 to 30 VDC</td>
<td>Power supply: 10 to 30 VDC</td>
<td>Supply voltage: DC 4-wire</td>
</tr>
<tr>
<td>Separate models available for NPN or PNP outputs</td>
<td>NPN or PNP transistor output</td>
<td>Output: NPN/PNP NO/NC</td>
</tr>
<tr>
<td>Range: 1 m (Axial), 0.8 m (Radial)</td>
<td>Sensitivity adjustment by Teach-in or by potentiometer</td>
<td>Sensor types: D, B, R, P and T</td>
</tr>
<tr>
<td>Sensitivity adjustment by potentiometer</td>
<td>Approvals/Marks: CE - cULus (UL508, CSA C22.2)</td>
<td>Connectivity: Cable or M8 connectors</td>
</tr>
<tr>
<td>Approvals/Marks: CE - cULus - ECOLAB</td>
<td>Approvals/Marks: CE - cULus (UL508, CSA C22.2) - ECOLAB</td>
<td>Approvals/Marks: CE - UL - CSA</td>
</tr>
</tbody>
</table>

**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

<table>
<thead>
<tr>
<th><strong>PC50</strong></th>
<th><strong>PD112</strong></th>
<th><strong>FA1</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions: 17 x 50 x 50 mm</td>
<td>Dimensions: 25 x 45 x 112 mm</td>
<td>2 x 4 digit LED display for signal and threshold level</td>
</tr>
<tr>
<td>Sensing distance up to 20 m</td>
<td>Long range background suppression (BGS) sensor</td>
<td>Easy setup 3 way adjustment switch</td>
</tr>
<tr>
<td>Modulated infrared light</td>
<td>Power supply receiver: 10 to 30 VDC</td>
<td>Selectable response time, timing delay functions</td>
</tr>
<tr>
<td>Make and break switching function selectable</td>
<td>NPN and PNP NO or NC output</td>
<td>100 mA NPN PNP NO NC Switching</td>
</tr>
<tr>
<td>Cable and plug version</td>
<td>Emitter with Mute Input for testing sensor function</td>
<td>Ø 0.25, 0.5 or 1.0 mm inner fiber diameter for different applications</td>
</tr>
<tr>
<td>Approvals/Marks: CE - UL - CSA</td>
<td>2.5 m sensing distance</td>
<td>Extra overmoulding on fiber units for better fiber curvature protection</td>
</tr>
</tbody>
</table>

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

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

- 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

**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
- Detection of labels, marks and double sheets

### Smart configurator for IO-Link sensors

**SCTL55**
- Handheld device for IO-Link sensors
- 5.5" HD touch screen display
- Automatic 1000 file download via Wi-Fi
- High capacity rechargeable battery
- M8 3-wire, M8 4-wire and M12 connectors
- Approvals/Marks: CE, cULus
- 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 switching point mode, logic and timing functions, sensing distance, output configuration (PNP/ NPN/push-pull, NO/NC)

### Inductive sensors with IO-Link

**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

**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 (CLHS)
- 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)

### Capacitive level sensor

**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%)
- Connector: 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

### Capacitive sensors

**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
Our product range

### Capacitive sensors

**CA18 / CA30**
- 4\textsuperscript{th} generation TRIPLESHIELD\textsuperscript{TM} technology
- Dimensions: M18 / M30
- Plastic housing DC versions
- Sensing distance up to 30 mm
- Approvals/Marks: CE - cULus - ECOLAB

**CA18..IO / CA30..IO**
- Dimensions: M18 / M30 (Plastic)
- 4\textsuperscript{th} generation TRIPLESHIELD\textsuperscript{TM} Technology
- IO-Link communication with timer, diagnostics and logic functions
- Sensing distance up to 30 mm
- Approvals/Marks: CE, cULus approved

**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

### Capacitive sensors with IO-Link

**UA18..IO / UA30..IO**
- IO-Link communication with timer, diagnostics and logic functions
- Sensing distance up to 30 mm
- Approvals/Marks: CE, cULus approved

### Ultrasonic sensors

**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

### PCB mount solid state relays

**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 - cULus - VDE

**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, 20-275 VAC
- Approvals/Marks: CE - EAC - cULus - CSA - CCC - VDE

**RGS1A.. / RGC1A..**
- Dimensions: 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) - cULus (RGS) - CSA (RGS) - GL (RGC up to 30 AAC)

### 1-phase solid state relays

**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 - cULus - VDE

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- Integrated output overvoltage protection
- Control input ranges: 4-32 VDC, 20-275 VAC (24-190 VDC)
- Approvals/Marks: CE - EAC - VDE - cULus (RGC) - cULus (RGS) - CSA (RGS) - GL (RGC up to 30 AAC)
## Our product range

### 1-phase solid state switches with current monitoring

**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 (RGS1S) - cULus (RGC1S) - cUS [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

### 3-phase solid state contactors

**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
- 100 kA short circuit current rating

### 3-phase general purpose soft starters

**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

**RVLF**
- Compact dimensions, with ratings up to 11 kW
- Inbuilt V/F and DLV 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

### Safety magnetic sensors and units

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

### Electromagnetic safety interlocks

**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
### Our product range

<table>
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<tr>
<th>Configurable safety modules</th>
<th>Configurable I/O expansion modules</th>
<th>Speed monitoring modules</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMM</td>
<td>C I/O</td>
<td>CES</td>
</tr>
<tr>
<td>4 non-safety test outputs for sensor monitoring</td>
<td>Wide range of Input/Output, Input only or Output only (both OSSD and standard relay) expansion units to serve different application requirements</td>
<td>Exp. units to monitor speed (PL e): Zero speed, Max speed, Speed range, Motion direction, rotation / translation.</td>
</tr>
<tr>
<td>2 non-safety programmable digital signal outputs</td>
<td>Models offer a variety of non-safety Inputs/Outputs such as: inputs for Start/Restart interlock and EDM, test outputs</td>
<td>RJ45 for encoder connections and terminal blocks for connection of proximity switches (up to 2 per module)</td>
</tr>
<tr>
<td>2 non-safety inputs for Start / Restart interlock and EDM</td>
<td>CONNECT file with 5 configuration modifications</td>
<td>Inputs frequency: Encoder up to 500 KHz (300 KHz for HIL), Proximity up to 5 KHz</td>
</tr>
<tr>
<td>LOG file with 5 configuration modifications</td>
<td>Connection with other exp. units via rear bus</td>
<td>MAIN FEATURES</td>
</tr>
<tr>
<td>Connection with other exp. units via rear bus</td>
<td>Also usable as a stand-alone device, able to control any other expansion unit</td>
<td>The modules allow the configuration of up to 4 speed thresholds for each logic output (axis)</td>
</tr>
<tr>
<td>Also usable as a stand-alone device, able to control any other expansion unit</td>
<td>8 safety digital inputs</td>
<td>Each module integrates two logic outputs configurable via the MSD and is capable of controlling up to two independent axes</td>
</tr>
<tr>
<td>8 safety digital inputs</td>
<td>2 safety OSSD pairs (400 mA Output)</td>
<td>CONFIGURABLE pre-set delayed safety outputs, set via the hex-switch</td>
</tr>
<tr>
<td>Certified to the highest safety levels: SIL 3, SILc 3, PL e, Cat.4, CE, TUV, cULus</td>
<td>Safety solution for enhanced safety and high protection in inertia machinery</td>
<td>Can be used in applications with: e-stop, e-gate, limit switch, non-contact switch, safety light curtains, safety light beam, safety mat</td>
</tr>
<tr>
<td>MAIN FEATURES</td>
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</tr>
<tr>
<td>Safety solution for enhanced safety and high protection in inertia machinery</td>
<td>The models offer eight combinations:</td>
<td>The modules allow the configuration of up to 4 speed thresholds for each logic output (axis)</td>
</tr>
<tr>
<td>Compact dimensions, 1 DIN, W x H x D: 18 x 90 x 63 mm</td>
<td>- 8 Inputs 2 Outputs; 12 Inputs 8 test Outputs</td>
<td>Each module integrates two logic outputs configurable via the MSD and is capable of controlling up to two independent axes</td>
</tr>
<tr>
<td>Configurable pre-set delayed safety outputs, set via the hex-switch</td>
<td>- 8 Inputs, 16 Inputs</td>
<td></td>
</tr>
<tr>
<td>Can be used in applications with: e-stop, e-gate, limit switch, non-contact switch, safety light curtains, safety light beam, safety mat</td>
<td>- 2 OSSD, 4 OSSD</td>
<td></td>
</tr>
<tr>
<td>Cat.4 PL e (ISO 13849-1), SIL 3 (IEC 62061), SILc 3 (IEC 61508)</td>
<td>2 OSSD Outputs, 4 OSSD Outputs</td>
<td></td>
</tr>
<tr>
<td>Approval by TUV</td>
<td>Approval by TUV</td>
<td></td>
</tr>
<tr>
<td>Manual or automatic start selectable</td>
<td>Multifunction safety module</td>
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<tr>
<td>Multifunction safety module</td>
<td>Multifunction monitoring relays with NFC</td>
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</table>

### Multifunction safety module

<table>
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<tr>
<th>CM22D0A</th>
<th>CM40D0A / CM30D1A</th>
<th>DPD02</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 4 OSSD safety outputs</td>
<td>4 OSSD safety outputs (CM40D0A)</td>
<td>Dimensions: 22.5 mm DIN-rail mounting enclosure</td>
</tr>
<tr>
<td>2 OSSD auxiliary outputs</td>
<td>3 OSSD safety outputs + 1 auxiliary output (CM30D1A)</td>
<td>120 VAC to 480 VAC Delta &amp; Star Mains</td>
</tr>
<tr>
<td>Safety solution for enhanced safety and high protection in inertia machinery</td>
<td>Safety solution for basic machines, equipment and production lines</td>
<td>Voltage and frequency monitoring</td>
</tr>
<tr>
<td>Compact dimensions, 1 DIN, W x H x D: 18 x 90 x 63 mm</td>
<td>Compact dimensions, 1 DIN, W x H x D: 18 x 90 x 63 mm</td>
<td>2 SPDT 8A relay outputs</td>
</tr>
<tr>
<td>MAIN FEATURES</td>
<td>MAIN FEATURES</td>
<td>Approvals/Marks: UL - CSA - CCC</td>
</tr>
<tr>
<td>Configurable pre-set delayed safety outputs, set via the hex-switch</td>
<td>Can be used in applications with: e-stop, e-gate, limit switch, non-contact switch, safety light curtains, safety light beam, safety mat</td>
<td></td>
</tr>
<tr>
<td>Can be used in applications with: e-stop, e-gate, limit switch, non-contact switch, safety light curtains, safety light beam, safety mat</td>
<td>Cat.4 PL e (ISO 13849-1), SIL 3 (IEC 62061), SILc 3 (IEC 61508)</td>
<td></td>
</tr>
<tr>
<td>Cat.4 PL e (ISO 13849-1), SIL 3 (IEC 62061), SILc 3 (IEC 61508)</td>
<td>Approval by TUV</td>
<td></td>
</tr>
<tr>
<td>Approval by TUV</td>
<td>Manual or automatic start selectable</td>
<td></td>
</tr>
<tr>
<td>Manual or automatic start selectable</td>
<td>Multifunction monitoring relays with NFC</td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Our product range</th>
<th>3-phase monitoring relays</th>
<th>Motor thermistor relays</th>
<th>Current monitoring relays</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DPA01 / DPB01</strong></td>
<td>Dimensions: 81 x 22.5 x 99.5 mm DIN-rail housing</td>
<td>3-phase monitoring relay for phase sequence and phase loss (DPA01)</td>
<td>TRMS 3-phase over and under voltage, phase sequence and phase loss monitoring relays (DPB01)</td>
</tr>
<tr>
<td></td>
<td>Selection of measuring range by DIP-switches (DPB01)</td>
<td>Detects when all phases are present and have the correct sequence (DPA01)</td>
<td>LED indication for relay, alarm and power supply ON</td>
</tr>
<tr>
<td><strong>DTA04</strong></td>
<td>Dimensions: 22.5 DIN Housing</td>
<td>Motor thermistor relay</td>
<td>PTC Open and PTC Short detection</td>
</tr>
<tr>
<td></td>
<td>Selection of measuring range by DIP-switches (DPB01)</td>
<td>Detects when all phases are present and have the correct sequence (DPA01)</td>
<td>LED indication for relay, alarm and power supply ON</td>
</tr>
<tr>
<td><strong>DIA53</strong></td>
<td>Dimensions: 81 x 17.5 x 67.2 mm DIN-rail housing with 12 mm hole for current measurement</td>
<td>Current monitoring relay with built-in current transformer</td>
<td>20, 50 or 100 A full scale</td>
</tr>
<tr>
<td></td>
<td>Selection of measuring range by DIP-switches (DPB01)</td>
<td>Detects when all phases are present and have the correct sequence (DPA01)</td>
<td>LED indication for relay, alarm and power supply ON</td>
</tr>
</tbody>
</table>

## Current monitoring relays and transformers

| **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) |
|                | Selection of measuring range by DIP-switches (DPA01) | Detects when all phases are present and have the correct sequence (DPA01) | LED indication for relay, alarm and power supply ON |
|                | A82: true RMS AC current metering transformer for 25, 50, 100, 250 or 500 AAC | Approvals/Marks: UL - CSA |

## 3-phase power analysers

| **WM20** | 96 x 96 mm panel mounting housing | Accuracy 0.2% (voltage, current) | Class 0.5S (kWh) |
|          | Programmable latching or inhibiting at set level | LED indication for relay, alarm and power supply ON | Programmable latching or inhibiting at set level |
|          | Pulse open collector or serial RS485 output | Modular housing to build the instrument according to real application needs | Pulse open collector or serial RS485 output |

## Energy analysers

| **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 |
|           | Programmable latching or inhibiting at set level | LED indication for relay, alarm and power supply ON | Programmable latching or inhibiting at set level |
|           | MID annex D certification available | Modular housing to build the instrument according to real application needs | MID annex D certification available |
|           | Approvals/Marks: CE - cULus | Pulse open collector or serial RS485 output | Approvals/Marks: CE - cULus |
## Packaging Machinery

### Our product range

<table>
<thead>
<tr>
<th>1 and 3-phase energy transducers</th>
<th>Timers</th>
<th>DIN-rail switch mode power supplies</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ET112 / ET340</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- 2 DIN size; DIN-rail mounting (ET112)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- 3 DIN size; DIN-rail mounting (ET340)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Measurement of voltage, current, power, power factor and frequency</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Bi-directional energy metering, 2 tariffs, cl. (EN62053-I)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Measuring inputs: 115/230 VAC, 100 A (ET112), single phase</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Measuring inputs: 208 to 400 VLL VAC, 65 A (ET340), 3-phase</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>DAA51 / DMB51</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Dimensions: 81 x 17.5 x 67.2 mm DIN-rail housing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Delay on operate function (DAA), multifunction (DMB)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Combined AC and DC power supply</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Repeatability: &lt;0.2%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Approvals/Marks: UL - CSA - RINA</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>SPD</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- DIN-rail mounting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- 1-phase (5-480 W), 2-phase (100 W), 3-phase (120-960 W)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Rated input voltage: B5-254 VAC (1-phase), 380/575 VAC (2-phase), 340/575 VAC / 480-620 VDC (3-phase)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Approvals/Marks: CE - 10V - cULus - UL1310 Class 2 (&lt;=92W), ISA12.12.1 Class 1, Div 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>SPPC</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Output power from 25 W to 800 W</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Input 110/240 VAC single phase</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Short circuit, overload and overvoltage protection</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- PFC function available &gt;75 W</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Approvals/Marks: CE - UL</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>SPUC / SPUBC</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Power supply, UPS and battery changer “All in one” (SPUBC), UPS controller (SPUC)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- 12 or 24 VDC 5 A output (up to 30 A SPUC)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Power boost up to 2 times rated output, permanent (SPUBC)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Built-in battery status, complete diagnosis (SPUBC)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Approvals/Marks: CE - UL</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>SPM</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Compact DIN-rail housing - 1/3/4/5 Din width</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Universal input from 90-264 VAC</td>
<td></td>
<td></td>
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<tr>
<td>- Integrated short circuit and overload protection with built-in input filters</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- High efficiency of up to 89%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Approvals/Marks: CE - cULus - TUV</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Low profile power supplies</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Metal enclosed power supplies</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>DC UPS</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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Specifications are subject to change without notice. Illustrations are for example only.
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