Solutions

Food and Beverage
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 three product lines: Sensors, Switches and Controls.

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.

Food and Beverage Solutions for

Coffee and vending machines

Heating and cooking equipment

Ice makers and cooling systems
DESIGNED TO MEET MARKET REQUIREMENTS

With over 40 years of expertise in manufacturing components for food and beverage equipment, Carlo Gavazzi can provide a wide range of advanced and reliable products for commercial heating and cooking equipment, ice making technology and cleaning processes.

Carlo Gavazzi is a market leader in solid state relay technology, offering innovative solutions in very compact dimensions for the control of heater loads. The range of products include solid state relays for PCB mounting, chassis mounting as well as solutions ready for use with a built-in heatsink.

The number of switching cycles in food and beverage equipment is quite substantial and a reliable switching solution that guarantees a long, maintenance-free lifetime can be provided only with solid state switching.

Carlo Gavazzi sensors are widely used to detect door closure or to check water level in coffee machines.

Food and beverage processes demand equipment capable of working in harsh environments and conditions.

The Carlo Gavazzi range of sensors include new photoelectric and capacitive types (Ecolab and IP69K approved) capable of withstanding high pressure and steam cleaning.

Monitoring relays, timers, switching power supplies and energy meters complete the range of Carlo Gavazzi products to ensure safe operation and monitoring of equipment, while increasing longevity.
Coffee and vending machines

Coffee machines, for both domestic and commercial use, must be reliably monitored in order to avoid any damage to the electromechanical elements such as the pump or the electrical resistance. Carlo Gavazzi products provide efficient control and ensure the reliability of equipment.

Level sensors are the best solution to check the water level as the sensor may be installed directly in the bottom of the tank. In addition there is a second solution that consists of a float in the tank controlled by means of magnetic sensors. The switching of heaters can be carried out reliably with the RF1, RAM1A..G or RA2A series which are fully solid state solutions and hence are not so susceptible to problems concerning contacts and arcing as is the case with electromechanical solutions. The RAM1 and RA2A series are also suitable for motor switching.

In the coffee and vending machine market, the quality of dispensed drinks (hot and cold), reliability, easy cleaning and maintenance are the keys for success. In coffee machines, the PD30 sensors with background suppression detect the cups to prevent coffee spillage. The CD50 sensors detect the level of coffee beans while the CD34, designed for water-based liquids, can ignore any residual film, moisture or foam.
Manufacturers of cooking equipment such as ovens, griddles, steamers and toasters need to ensure food quality and safety, improving production processes and ensuring a long operating lifetime. As global legislation enforces restrictions and bans on the use of mercury Carlo Gavazzi’s solid state relays and contactors are RoHS compliant and are mercury free. They can operate in humid conditions without being affected by vapors that may be present in the surrounding environment. The Carlo Gavazzi solid state solutions integrate protection against uncontrolled transients and over voltages to guarantee reliable operation. Additionally, the materials used for the RF1, RAM1A..G, RK and RG conform to the glow wire requirements of IEC/EN 60335-1 (Safety of Household and Similar Electrical Appliances). The RF1, RK and RG series offer the possibility of panel space optimization. The RF1 occupies only 30% of the space required by other panel mounted solid state relays, RG solutions are available in a width as small as 17.5 mm and the RK houses 2 poles in one platform providing up to 50% space savings. The RGCxP series enables analog inputs to be connected directly to the relay when it is necessary to control the output power in proportion to the level of control input. Machinery protection from voltage surges, overcurrent or phase loss is ensured by Carlo Gavazzi compact monitoring relays, thus prolonging their lifetime. In the industrial conveyor oven the LD30 is placed close to a conveyor belt and has two different outputs, which can measure two sizes of food thus regulating the belt speed and consequently the time inside the heating chamber.
Thanks to the progress in energy efficiency, size reduction and low refrigeration charge there are many applications of ice making technology, with millions of ice makers around the world. You can find ice makers in hotels, bars and restaurants as well as in hospitals, laboratories, supermarkets and in the food industry.

The wide range of inductive, capacitive, photoelectric and ultrasonic sensors by Carlo Gavazzi include some types suitable to be installed in ice makers. An inductive sensor - specifically designed for this application - detects the low speed of the gear motor, sending a signal to the PC board which stops the ice machine operation.

Carlo Gavazzi photoelectric sensors can also be used for ice level control. The sensor sends a signal to the P.C. board to stop the machine when a beam of light sent by the optical device is shielded by ice. The ice machine will then stop making ice before the bin or dispenser is full.

Capacitive sensors also enable accurate control of water levels by sending a water-fill signal to the controller. Additionally RSWT and RSGD soft starters are used to soft start and soft stop high pressure pumps in industrial washing equipment.

![Image of ice makers and cooling systems](image-url)

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**Photoelectric sensors**
- PA18
- PH18

**Inductive proximity sensors**
- ICS08
- HAA08
- HAA14
- FMB01

**Capacitive sensors**
- CD50CNF
- CD34CNF

**Capacitive level sensors**
- RSWT
- RSGD

**Soft starters**
- EM340
- EM112

**Energy analyzers**
- UDM 40
- LDM 40

**Digital panel meters**
- EM340
- EM112
- UDM 40
- LDM 40
The food industry requires a high level of hygiene and cleanliness in equipment that has to withstand daily wash-downs at high temperatures, high pressure cleaning and harsh detergents. The PD30ET stainless steel sensors work perfectly even in the harshest environments (e.g. in detecting the presence of meat or meat trays on a conveyor system). The sturdy stainless steel housing (AISI316L) together with high-quality plastic materials such as PEEK, PPSU, and PES sealings of FKM, guarantee outstanding mechanical resistance. These sensors are built to withstand cleaning with water at 80°C (176°F), high pressure washing up to 100 bar (1,450 psi) and to resist alkaline and acidic cleaning agents and are IP69K and Ecolab certified. The PD30 background suppression sensors detect all lid colours on objects at the same distance from the sensor, and their durable design withstands daily cleaning processes. The PA/PH18 sensor series is another solution for applications where harsh cleaning methods are required. The photoelectric sensors - PA18 series - comply with the requirements set out by Ecolab, IP67, IP69K. Offered in a compact M18 threaded ABS housing, this sensor series is available in both axial (straight) and radial (90° right angled) versions.

The Carlo Gavazzi ICS series of inductive proximity sensors are also the ideal solution for demanding applications characterized by harsh environmental conditions. The Ecolab certification guarantees resistance to industrial cleaning agents, such as alkaline or chlorine foam and acid foam disinfectants. The material used for the plastic cap is FDA certified.
<table>
<thead>
<tr>
<th>Our product range</th>
<th>1-phase solid state relays</th>
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<th>1-phase solid state relays</th>
<th>2-pole solid state relays</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>RA2A / RA2A..C</strong></td>
<td>Dimensions: 57.8 x 44.5 x 31.7 mm, panel mount</td>
<td>Rated operational voltage: up to 660 VAC</td>
<td>Rated current per pole: up to 40 AAC</td>
<td>Approvals/Marks: CE - cURus - CSA - EAC</td>
</tr>
<tr>
<td><strong>RA2A / RA2A..C</strong></td>
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<tr>
<td><strong>RA1A..G</strong></td>
<td>Dimensions: 58.2 x 44.8 x 28.8 mm, panel mount</td>
<td>Rated operational voltage: up to 660 VAC</td>
<td>Rated current: 25 AAC, 50 AAC, 75 AAC, 100 AAC</td>
<td>Approvals/Marks: CE - cURus - CSA - EAC - CCC</td>
</tr>
<tr>
<td><strong>RA1A..G</strong></td>
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<tr>
<td><strong>RF1</strong></td>
<td>Dimensions: 36 x 21 x 24 mm, panel mount</td>
<td>Rated operational voltage: up to 280 VAC</td>
<td>Rated current: up to 25 AAC</td>
<td>Approvals/Marks: CE - cURus - CSA - VDE</td>
</tr>
<tr>
<td><strong>RF1</strong></td>
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<tr>
<td><strong>RM1A</strong></td>
<td>Dimensions: 58.2 x 44.8 x 28.8 mm, panel mount</td>
<td>Rated operational voltage: up to 660 VAC</td>
<td>Rated current: 25 AAC, 50 AAC, 75 AAC, 100 AAC</td>
<td>Approvals/Marks: CE - cURus - CSA - EAC</td>
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<tr>
<td><strong>RM1A</strong></td>
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<tr>
<td><strong>RGS1A</strong></td>
<td>Dimensions: 90 x 17.8 x 51 mm, panel mount</td>
<td>Ratings: up to 660 VAC, 90 AAC, 18,000 A2s</td>
<td>Integrated output overvoltage protection</td>
<td>Control input: 4-32 VDC, 20-275 VAC (24-190 VDC)</td>
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<tr>
<td><strong>RGS1A</strong></td>
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<tr>
<td><strong>RK</strong></td>
<td>Dimensions: 45 x 58 x 33 (44) mm, panel mount</td>
<td>Independent control (RKD...) or common control (RK2...)</td>
<td>Ratings: up to 660 VAC, 50 AAC /pole, 125 AAC /pole</td>
<td>Control input: 4-32 VDC</td>
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<tr>
<td><strong>RK</strong></td>
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<tr>
<td><strong>RGC1A</strong></td>
<td>Product width 17.5 mm up to 70 mm,</td>
<td>DIN or panel mount</td>
<td>Ratings: up to 660 VAC, 85 AAC, 18,000 A2s</td>
<td>Integrated output overvoltage protection</td>
</tr>
<tr>
<td><strong>RGC1A</strong></td>
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<tr>
<td><strong>RGC2A / RGC3A</strong></td>
<td>Product width up to 70 mm, DIN-rail mount</td>
<td>Ratings: up to 660 VAC, 75 AAC (RGC2A), 65 AAC (RGC3A) @ 40°C</td>
<td>Motor ratings up to 11 kW @ 400 VAC, 25 HP @ 600 VAC</td>
<td>Control input: 4-32 VDC, 20-275 VAC (24-190 VDC)</td>
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<td><strong>RGC2A / RGC3A</strong></td>
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<tr>
<td><strong>RGC3A</strong></td>
<td><strong>MAIN FEATURES</strong></td>
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<td><strong>RGC3A</strong></td>
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</tr>
</tbody>
</table>

**MAIN FEATURES**
- Zero cross or Random switching
- Suited for resistive loads
- Integrated output overvoltage protection
- Certified as a motor switching device
- Certified to EN 60335 glow wire requirements
- LED per pole for control status indication

**2-pole solid state relays**
- **RF1**
- **RM1A**
- **RGS1A**
- **RK**
- **RGC1A**
- **RGC2A / RGC3A**

**1-phase solid state relays**
- **RF1**
- **RM1A**
- **RGS1A**
- **RK**
- **RGC1A**
- **RGC2A / RGC3A**

**1-phase solid state contactors**
- **RF1**
- **RM1A**
- **RGS1A**
- **RK**
- **RGC1A**
- **RGC2A / RGC3A**

**3-phase solid state contactors**
- **RGC1A**
- **RGC2A / RGC3A**

**MAIN FEATURES**
- Zero cross or Random switching
- 100 kA short circuit current rating
- Optional integrated overtemperature protection
- 3-phase, 2-pole or 3-pole switching
- Optional monitoring for load and SSR malfunction
- 100 kA short circuit current rating
## Our product range

### 3-phase proportional controllers
- **RGC2P / RGC3P**
  - Product width up to 70 mm, DIN-rail mount
  - Rated operational voltage: 180 - 660 VAC
  - Rated current: up to 75 AAC (RGC2P), 65 AAC (RGC3P) @ 40°C
  - Control input: 0-20 mA, 4-20 mA, 12-20 mA, 0-10 V, 0-5 V, 1-5 V, external potentiometer
  - Approvals/Marks: CE - cULus - EAC - CCC

### MAIN FEATURES
- Integrated output overvoltage protection
- Phase angle, Distributed full cycle or Soft start as switching modes
- Integrated monitoring for SSR and load circuit malfunction

### Photoelectric sensors
- **PD30C.. / PD30ET**
  - Dimensions: 10.8 x 30 x 20 mm, 11 x 31.5 x 21 mm
  - Mounting: 2 x M3 - 25,4 mm
  - Power supply: 10 to 30 VDC
  - Sensing distance: < 15 m
  - Output: NPN/PNP NO+NC
  - Sensor types: D, B, R, P and T
  - Connectivity: cable or MB connectors
  - Approvals/Marks: CE - cULus - ECOLAB

### MAIN FEATURES
- Resistant to high-pressure washdowns, aggressive cleaning agents and disinfectants
- IP67, (IP68, IP69K only for PD30ET), NEMA type 1, (2, 4, 4x, 5, 6, 6P only for PD30ET)
- Protection: reverse polarity, short circuit and transients

### Capacitive sensors
- **PA18**
  - 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
- Adjustment: back or top potentiometer
- IP67, IP68, IP69K only for LD30E
- NEMA type 1, (2, 4, 5, 6, 6P only for LD30E)
- Diagnostics tools: Quality of Run & Quality of Teach, Alarms and transients

### Capacitive sensors
- **CD50CNF**
  - Dimensions: 50 x 30 x 7 mm
  - Supply: 10-30 VDC or 5 VDC
  - 3-wire DC sensors with open collector NPN or PNP transistor output
  - Approvals/Marks: CE

### MAIN FEATURES
- ECOLAB approved/CE-marking/cULus approved according to UL508
- Diagnostic LED indication (green and yellow LED)
- Protection: short-circuit, reverse polarity and overload

### Photoelectric sensors
- **PH18**
  - Square sensor with M18 front
  - Power supply: 10 to 30 VDC
  - Separate models available for NPN or PNP outputs
  - Sensing types: Diffuse reflective, BGS, Pol. Retro-reflective, Through beam
  - Sensitivity adjusted by potentiometer
  - Approvals/Marks: CE - cULus - ECOLAB

### MAIN FEATURES
- ECOLAB approved/CE-marking/cULus approved according to UL508
- Diagnostic LED indication (green and yellow LED)
- Protection: short-circuit, reverse polarity and overload

### Capacitive sensors
- **CA18CAN / CAF / CA30CAN / CAF**
  - Sensing distance: 0.5 - 12 mm (M18), 2 - 30 mm (M30)
  - NPN or PNP, N.O. and N.C. output
  - Dust or temperature alarm output
  - Sensing face can withstand temperature up to 120 °C
  - Approvals/Marks: CE - cULus - ECOLAB

### MAIN FEATURES
- 4th Generation TRIPLESHIELD™ with superior EMI performance
- IP67, IP68 and IP69K, Nema 1, 2, 4, 4X, 5, 6, 6P, 12
- Diagnostic LED indication

### Capacitive sensors
- **CA18..IO / CA30..IO**
  - Sensing distance: 0.5 - 12 mm (M18), 2 - 30 mm (M30)
  - Selectable: NPN, PNP, Push-Pull, External Input, N.O. and N.C. output
  - IO-Link 1.1 with timer, diagnostics and logic functions

### MAIN FEATURES
- 4th Generation TRIPLESHIELD™ with superior EMI performance
- IP67, IP68 and IP69K
- Diagnostics tools: Quality of Run & Quality of Teach, Alarms

### Capacitive sensors
- **CD50CNF**
  - Dimensions: 50 x 30 x 7 mm
  - Supply: 10-30 VDC or 5 VDC
  - 3-wire DC sensors with open collector NPN or PNP transistor output
  - Approvals/Marks: CE

### MAIN FEATURES
- Basic capacitive water level sensor
- Detection of excess water in the tank
- Mounting by screws or glued on the outside of any non-metallic tank
# Food and Beverage

## Our product range

### Capacitive level sensors

#### 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%)
- Cable or M8 4-pin Pigtail
- Approvals/Marks: CE - cULus - ECOLAB

#### ICS08
- Stainless steel housing M8
- Sensing distance: 2 mm to 4 mm
- Output functions: programmable NO or NC, NPN, PNP or push-pull
- Two meter PVC cable or M8 plug version
- Approvals/Marks: CE - UL - CSA

#### ICS12 / ICS18 / ICS30
- Standard M12, M18 and M30 cylindrical housing
- Power supply: 10 to 36 VDC
- Sensing distance from 2 mm up to 22 mm
- Housing: stainless steel, IP67, IP68 and IP69K
- Approvals/Marks: CE - UL - c CSAus

### Safety magnetic sensors

#### ILM / ILSP
- Cylindrical, float diameter 17.5 to 53 mm
- Reversible output function by float overturning
- High temperature versions available up to 120°C
- Degree of protection: IP67 minimum

#### CLS / SMS
- Rectangular or cylindrical housing
- Connection: PVC cable or pigtail solution
- Housing material: plastic or stainless steel
- Approvals/Marks: CE - cULus

#### MC36CH / MC36CM
- Rectangular plastic housing: 36 x 26 x 13 mm
- Assured switching distance (Sao) 5 mm
- Output functions: 2 NO or 1 NO + 1 NC
- 2 meter PVC cable or M8 plug version
- Approvals/Marks: CE - UL

### Inductive proximity sensors

#### Level magnetic sensors

#### Safety magnetic sensors

#### Safety magnetic sensors

#### Cordsets

#### Level magnetic sensors

#### Safety magnetic sensors

#### Safety magnetic sensors

#### Multifunction meters

#### ILM / ILSP
- Cylindrical, float diameter 17.5 to 53 mm
- Reversible output function by float overturning
- High temperature versions available up to 120°C
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#### CLS / SMS
- Rectangular or cylindrical housing
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- Approvals/Marks: CE - UL

### Inductive proximity sensors

#### Capacitive level sensors

#### Inductive proximity sensors

#### Inductive proximity sensors

#### Cordsets

### MAIN FEATURES

- Detects 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 1,2,4,5,12
- Protection: reverse polarity, shortcircuit and transients

- Operating temperature: -25°C to +80°C
- Automatic adaption to tank wall thickness
- Eliminating influence from build-up or foam
- IP65, 66, 67, 68, 69K NEMA type 1,2,4,5,12
- Protection: reverse polarity, shortcircuit and transients

- Multiple flux coding
- Several combinations of safety and auxiliary outputs available
- Operating temperature -25° to +70°C
- Flexibility: left or right exit connection versions
- LED version available for all variants

- ECOLAB approved
- Short-circuit and overload LED indication
- Extended temperature range: -40°C to +80°C
- FDA approved plastic cap

- Dimensions: 6 DIN-rail module or 96 x 96 mm panel mounting housings
- 3-phase multifunction indicator (WM12) or analyzer (WM14)
- Accuracy 0.5 % (voltage, current)
- Front protection degree IP65, NEMA4X, NEMA12

- Available models from a simple indicator up to an advanced analyzer
- Allows the serial re-transmission of the main parameters to a PLC for full control of the system
- Suitable for DIN-rail or panel mounting
# Our product range

## 1-phase energy analyzers up to 45A
- **EM111**
  - 1 DIN module
  - Backlit touch LCD
  - Measurement of voltage, current, power, power factor and frequency
  - Bi-directional energy metering, 7-digits cl. B (EN50470)
  - Measuring inputs: 115/230 VAC, 32 A (max 45 A)
  - Approvals/Marks: CE - MID (PFA and PFB)
  - **Main Features**
    - Self-powered
    - Dual tariff management
    - Pulse output or RS485 Modbus or M-Bus port
    - Sealable terminal covers

## 1-phase energy analyzers up to 100A
- **EM112**
  - 2 DIN modules
  - Backlit touch LCD
  - Display backup by supercapacitor
  - Measurement of voltage, current, power, power factor and frequency
  - Bi-directional energy metering, 8-digits, cl. B (EN50470)
  - Measuring inputs: 115/230 VAC, 100 A
  - Approvals/Marks: CE - MID (PFA and PFB)
  - **Main Features**
    - Self-powered
    - Dual tariff management
    - Pulse output or RS485 Modbus or M-Bus port
    - Sealable terminal covers

## 3-phase energy analyzers for direct current up to 65A
- **EM340**
  - 3 DIN modules
  - Backlit touch LCD
  - Measurement of voltage, current, power, power factor and frequency
  - Bi-directional energy metering, 3x8-digit, cl. B (EN50470)
  - Measuring inputs: 230 to 400 VLL AC, 65 A
  - Approvals/Marks: CE - MID (PFA and PFB)
  - **Main Features**
    - Self-powered
    - Dual tariff management
    - Pulse output or RS485 Modbus or M-Bus port
    - Sealable terminal covers

## 3-phase energy analyzers for direct current up to 45A
- **DPA51**
  - 81 x 17.5 x 67.2 mm; DIN-rail housing
  - Phase sequence and phase loss, regenerated voltage detection
  - 3 phase AC (own power supply)
  - Approvals/Marks: CE - UL - CSA - CCC
  - **Main Features**
    - Motor protection against reverse running and phase loss
    - 1 DIN module width. Suitable for NORM panels
    - No setup needed (plug&play)

## 3-phase energy analyzers for direct current up to 65A
- **DPA52**
  - 81 x 17.5 x 67.2 mm; DIN-rail housing
  - Phase sequence and phase loss, regenerated voltage detection
  - 3 phase AC (own power supply)
  - Approvals/Marks: CE - UL - CSA - CCC
  - **Main Features**
    - Motor protection against reverse running and phase loss
    - 1 DIN module width. Suitable for NORM panels
    - No setup needed (plug&play)

## AC Current relays
- **DIA53**
  - 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 A, 50 A or 100 A AC
  - Self powered
  - Approvals/Marks: CE - cULus - CSA
  - **Main Features**
    - Only 2 wires connection
    - Adjustable current tripping setpoint
    - Integrated solid state NPN PNP output

## Voltage and current relays
- **DUA01**
  - 80 x 22.5 x 99.5 mm; DIN-rail housing
  - Voltage measurement from 2V to 500V AC/DC
  - AC current measurement with MI... and MP... transformers
  - Power supply 24-48 VAC/DC; 115/230 VAC
  - Approvals/Marks: CE - UL - CSA
  - **Main Features**
    - Safe AC current monitoring thanks to MI and MP avoiding overload consequences
    - The relay trips as soon as the monitored value is above the setpoint
    - Auxiliary power supply to ensure the relay is always active

## Monitoring relays
- **DIB71**
  - Dimensions: 81 x 35.5 x 67.2 mm DIN-rail housing
  - Over or under current monitoring relay 1-phase AC/DC TRMS
  - Power supply from 24 to 2380 VAC (± 15%)
  - Approvals/Marks: UL - CSA - CE approved
  - **Main Features**
    - Simply solution to monitor overload, LED indication for relay, alarm and power supply ON
    - 35.5 mm wide housing suitable both back and front panel mounting
Food and Beverage

Our product range

<table>
<thead>
<tr>
<th>3-phase pump and ventilator soft starters</th>
<th>3-phase general purpose soft starters</th>
<th>1-phase solid state soft starter for pumps and ventilators</th>
</tr>
</thead>
<tbody>
<tr>
<td>RSWT</td>
<td>RSGD</td>
<td>RGTS</td>
</tr>
<tr>
<td>• Motor rating: up to 45 kW (90 A)</td>
<td>• Operational voltage range: 187 - 440 VAC, 187 - 660 VAC</td>
<td>• Operational current: up to 25 AAC</td>
</tr>
<tr>
<td>• 3-phase controlled &amp; externally bypassed</td>
<td>• Operational current range: 12 AAC up to 100 AAC</td>
<td>• Operational voltage: 110 - 230 VAC 50/60 Hz</td>
</tr>
<tr>
<td>• Operational voltage: RSWT40: 220 - 400 VAC, RSWT60: 220 - 600 VAC</td>
<td>• Control voltage: 24 VAC/DC, 110 - 400 VAC</td>
<td>• Current reduction vs DOL: up to 45%</td>
</tr>
<tr>
<td>• PTC input, Alarm - Top of Ramp - Run relay indication</td>
<td>• Auxiliary relays for top of ramp and alarms</td>
<td>• Fully solid state solution</td>
</tr>
<tr>
<td>• Approvals/Marks: cULus - CCC - EAC</td>
<td>• Serial communication (Modbus 2-wire) (RSGD 75 mm models)</td>
<td>• Approvals/Marks: cULus approved</td>
</tr>
</tbody>
</table>

**MAIN FEATURES**

- Easy to use and set up
- Self-learning algorithm to improve pump starts/stops
- Integrated overload protection (Class 10)

<table>
<thead>
<tr>
<th>HAA08 / HAA14</th>
<th>FMB01</th>
<th>UDM / LDM40</th>
</tr>
</thead>
<tbody>
<tr>
<td>• 28 x 21.5 x 70 mm; for 8 pin or 14 pin blade socket</td>
<td>• 48 x 48 x 96.1 mm; for 11 pin socket or panel mounting</td>
<td>• Dimensions: 48 x 96 x 105 mm (UDM40); 48 x 96 x 83 mm (LDM40)</td>
</tr>
<tr>
<td>• Multifunction timer</td>
<td>• Multifunction timer</td>
<td>• TRMS AC current and voltage measurements</td>
</tr>
<tr>
<td>• DPDT or 4PDT relay output</td>
<td>• DPDT relay output</td>
<td>• AC/DC current measurements: selectable full scales (200 μA to 5 A)</td>
</tr>
<tr>
<td>• Power supply voltage: 24 - 240 V AC/DC</td>
<td>• Power supply voltage: 12 - 240 V AC/DC</td>
<td>• AC/DC voltage measurements: selectable full scales (200 mV to 500 V)</td>
</tr>
<tr>
<td>• Approvals/Marks: CE - cUR - CSA</td>
<td>• Approvals/Marks: CE - cUR - CSA</td>
<td>• Approvals/Marks: CE - cULus - cCSAus</td>
</tr>
</tbody>
</table>

**MAIN FEATURES**

- Adjustable front dial for time setting
- Selectable time ranges from 0.1 s to 100 h
- Delay on operate, delay on release, ON/Off first symmetrical recycle, single/double interval on trigger open/close

- Adjustable front dial for time setting
- Selectable time ranges from 0.05 s to 300 h
- Delay on operate, delay on release, ON/Off first symmetrical recycle, single/double interval on trigger open/close

- Accuracy class 0.1% reading
- UDM40: °C or °F temperature measurements, resistance measurements, rate, speed, frequency and period measurement

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

## Multifunction safety modules

<table>
<thead>
<tr>
<th>Model</th>
<th>Dimensions</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>CM22DOA / CM40DOA / CM30D1A</td>
<td>110,8 x 17,5 x 121,1 mm DIN-rail housing</td>
<td>- Compact dimension, 1 DIN, W x H x D: 18 x 90 x 63 mm. &lt;br&gt; - Safety solution for basic machines, equipment and production lines. &lt;br&gt; - 4 LEDs on the front panel indicate the status and any errors during operation. &lt;br&gt; - Up to 4 OSSD safety outputs. &lt;br&gt; - Approvals/Marks: CE - cULus - TÜV</td>
</tr>
<tr>
<td>SMS31</td>
<td></td>
<td>- Dimensions 110,8 x 17,5 x 121,1 mm DIN-rail housing &lt;br&gt; - Auto, manual or monitored manual start &lt;br&gt; - 3 NO safety relay outputs &lt;br&gt; - 1 NC auxiliary relay output &lt;br&gt; - Detchable screw terminals &lt;br&gt; - Approvals/Marks: CE - cULus - TÜV</td>
</tr>
<tr>
<td>CMM</td>
<td>4 non-safety test outputs for sensor monitoring</td>
<td>- 4 non-safety programmable digital signal outputs &lt;br&gt; - 2 non-safety inputs for Start / Restart interlock and EDM &lt;br&gt; - LOG file with 5 configuration modifications &lt;br&gt; - Connection with other exp. units via rear bus &lt;br&gt; - Approvals/Marks: CE - cULus - TÜV</td>
</tr>
</tbody>
</table>

## Configurable safety modules

<table>
<thead>
<tr>
<th>Model</th>
<th>Dimensions</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>DDC + CBT</td>
<td></td>
<td>- DDC: Expansion unit for Diagnostics and Data Comm.: &lt;br&gt; - Exp. units to monitor speed (Ple): &lt;br&gt; Zero speed, Max speed, Speed range &lt;br&gt; Motion direction; rotation / translation. &lt;br&gt; RJ45 for encoder connections and terminal blocks for connection to proximity switches (up to 2 proximity switches per module). &lt;br&gt; Inputs frequency: Encoder up to 500 KHz (300 KHz for HTL), Proximity up to 5 KHz &lt;br&gt; Approvals/Marks: CE - cULus - TÜV</td>
</tr>
<tr>
<td>CES</td>
<td></td>
<td>- Exp. units to monitor speed (Ple): &lt;br&gt; Zero speed, Max speed, Speed range &lt;br&gt; Motion direction; rotation / translation. &lt;br&gt; RJ45 for encoder connections and terminal blocks for connection to proximity switches (up to 2 proximity switches per module). &lt;br&gt; Inputs frequency: Encoder up to 500 KHz (300 KHz for HTL), Proximity up to 5 KHz &lt;br&gt; Approvals/Marks: CE - cULus - TÜV</td>
</tr>
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</table>

## I/O expansion modules

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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>C I/O</td>
<td></td>
<td>- Wide range of Input/Output, Input only or Output only (both OSSD and standard relay) expansion units to serve different application requirements &lt;br&gt; - Models offer a variety of non-safety Inputs/Outputs such as: inputs for Start/Restart interlock and EDM, test outputs &lt;br&gt; - Approvals/Marks: CE - cULus - TÜV</td>
</tr>
<tr>
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<td></td>
<td>- DDC: Expansion unit for Diagnostics and Data Comm.: &lt;br&gt; - Exp. units to monitor speed (Ple): &lt;br&gt; Zero speed, Max speed, Speed range &lt;br&gt; Motion direction; rotation / translation. &lt;br&gt; RJ45 for encoder connections and terminal blocks for connection to proximity switches (up to 2 proximity switches per module). &lt;br&gt; Inputs frequency: Encoder up to 500 KHz (300 KHz for HTL), Proximity up to 5 KHz &lt;br&gt; Approvals/Marks: CE - cULus - TÜV</td>
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</tr>
</tbody>
</table>

## Data and diagnostic modules + bus transfer

<table>
<thead>
<tr>
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</tr>
</tbody>
</table>

## Speed monitoring modules

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</tr>
</thead>
<tbody>
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<td></td>
<td>- DDC: Expansion unit for Diagnostics and Data Comm.: &lt;br&gt; - Exp. units to monitor speed (Ple): &lt;br&gt; Zero speed, Max speed, Speed range &lt;br&gt; Motion direction; rotation / translation. &lt;br&gt; RJ45 for encoder connections and terminal blocks for connection to proximity switches (up to 2 proximity switches per module). &lt;br&gt; Inputs frequency: Encoder up to 500 KHz (300 KHz for HTL), Proximity up to 5 KHz &lt;br&gt; Approvals/Marks: CE - cULus - TÜV</td>
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</tr>
</tbody>
</table>

### MAIN FEATURES

- **CM22D0A / CM40D0A / CM30D1A**<br> Selectable delay time<br> Can be used in application with: e-stop, e-gate, limit switch, non contact switch, safety light curtains, safety light beam and safety mat<br> Cat.4, PL e (ISO 13849-1), SIL 3 (IEC 62061), SILcl 3 (IEC 61508)<br> 2 OSSD auxiliary outputs<br> Selectable manual or automatic start

- **SMS31**<br> Dual channels simultaneity infinite<br> Safe monitoring of emergency stops, interlocks, safety magnetic and limit switches<br> Front LED’s for safety channel diagnosis<br> PL e as per ISO EN 13849-1<br> 2 OSSD auxiliary outputs<br> Selectable manual or automatic start

- **CMM**<br> Also usable as a stand-alone device, able to control any other expansion unit<br> 8 safety digital inputs<br> 2 safety OSSD pairs (400 mA Output)<br> Cat.4, PL e (ISO 13849-1), SIL 3 (IEC 62062), SILcl 3 (IEC 61508),

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**CARLO GAVAZZI Automation Components.** Specifications are subject to change without notice. Illustrations are for example only.
## Food and Beverage

### Our product range

<table>
<thead>
<tr>
<th>Electromagnetic Safety Interlock</th>
<th>Switching power supplies</th>
<th>Switching power supplies</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ESI</strong></td>
<td><strong>SPD: DIN-rail type</strong></td>
<td><strong>SPPC: Enclosed type</strong></td>
</tr>
<tr>
<td>• Enhancing safety. Ideal for applications that require access to remain closed and locked until potential hazards have stopped or come to a predetermined safe state.</td>
<td>• DIN-rail housing</td>
<td>• Compact dimensions</td>
</tr>
<tr>
<td>• Protecting machines from interruptions in production</td>
<td>• Short circuit and overload protection</td>
<td>• Universal input voltage range: 85 VAC – 264 VAC/120 VDC – 370 VDC (SPPC150F type)</td>
</tr>
<tr>
<td>• Standards compliance. SIL 3 (EN 62061), PL e in accordance with EN ISO 13849-1, interlock type 2 in accordance with EN ISO 14119.</td>
<td>• 1-Phase and 3-phase</td>
<td>• 105°C long life electrolytic capacitors</td>
</tr>
<tr>
<td>• Approvals by IMQ - CE - cULus.</td>
<td>• Universal supply voltage AC/DC</td>
<td>• Adjustable output</td>
</tr>
<tr>
<td><strong>MAIN FEATURES</strong></td>
<td><strong>MAIN FEATURES</strong></td>
<td><strong>MAIN FEATURES</strong></td>
</tr>
<tr>
<td>• Ensure protection in inertia’s machineries</td>
<td>• High efficiency</td>
<td>• High efficiency and compact size</td>
</tr>
<tr>
<td>• Prevents entry into a dangerous area until the unlock signal</td>
<td>• LED indicator for DC power on</td>
<td>• DC output: 5, 12, 15, 24 and 48 V</td>
</tr>
<tr>
<td>• With a manual unlock device for emergency</td>
<td>• Parallel versions available</td>
<td>• Built-in active PFC (Power Factor Correction) function: PF &gt;0.98 @ 115 VAC and PF &gt; 0.95@ 230 VAC (SPPC150F type)</td>
</tr>
<tr>
<td>• Block controlled by solenoid</td>
<td>• Active PFC ≥ 90 W</td>
<td></td>
</tr>
</tbody>
</table>
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