Solutions

Packaging Machinery
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.

Filling

Inspection

Wrapping and sealing

Labelling

Packaging Machinery

Solutions for
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.
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.
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.

<table>
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<th>Photoelectric sensors</th>
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<th>Solid state switches</th>
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<td>PD112</td>
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CARLO GAVAZZI Automation Components. Specifications are subject to change without notice. Illustrations are for example only.
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 CERTUS configurable safety module offers up to 128 inputs and 16 pairs of programmable solid state outputs in a compact modular system, managing and monitoring at the same time safety sensors and commands 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.
Safety devices and energy efficiency

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 ET energy transducer can monitor all the main parameters of an electric line or load.

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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.
Our product range

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

Photoelectric sensors

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

Photoelectric sensors

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

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

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
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<td><strong>PCB mount solid state relays</strong></td>
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<td><strong>1-phase solid state switches</strong></td>
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<tr>
<td><strong>UA18 / UA30</strong></td>
<td><strong>CD34CNF</strong></td>
<td><strong>CA18 / CA30</strong></td>
<td><strong>ECH</strong></td>
<td></td>
</tr>
<tr>
<td>Dimensions: M18, M30</td>
<td>Dimensions: 8 x 16 x 34 mm</td>
<td>Dimensions: 4th generation Tripleshield™ technology</td>
<td>Sensor diameter: M30, teflon and stainless steel</td>
<td></td>
</tr>
<tr>
<td>Ultrasonic sensors with integrated amplifier providing a digital and/or analog output</td>
<td>Power supply: 10-30 DC</td>
<td>Dimensions: M18 / M30</td>
<td>Adjustable sensing distance: 4 to 15 mm, factory set for 10 mm</td>
<td></td>
</tr>
<tr>
<td>Housing material: plastic and stainless steel</td>
<td>Output: NPN / PNP / NO or NC</td>
<td>Plastic housing DC versions</td>
<td>Output: transistor NPN or PNP, make &amp; break switching</td>
<td></td>
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<tr>
<td>Sensing distance up to 6 m</td>
<td>Power supply from 208 to 480 VAC (+/- 15%)</td>
<td>Sensing distance up to 30 mm</td>
<td>Power supply: 10 to 40 VDC</td>
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<td><strong>MAIN FEATURES</strong></td>
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<tr>
<td>Excellent EMC performance and precision</td>
<td>Detecting water-based liquids (up to 50 m3)</td>
<td>Highest EMC immunity</td>
<td>Provided with a separate teflon sensor head in M30 for temperatures within the range of -196°C to +180°C</td>
<td></td>
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<tr>
<td>Detects clear, transparent and shiny targets, solid objects, liquid or granules.</td>
<td>Automatic adaption to tank wall thickness</td>
<td>ESD ratings up to 40 KV</td>
<td>Protection: reverse polarity, short circuit, transients</td>
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<tr>
<td>Protection: short circuit, transient and reverse polarity</td>
<td>Eliminating influence from buildup or foam</td>
<td>Sensing face temperature up to 120°C</td>
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<tr>
<td><strong>CA18 / CA30</strong></td>
<td><strong>RGS1A.. / RGC1A..</strong></td>
<td><strong>RP1</strong></td>
<td><strong>RM1.. / RAM1..</strong></td>
<td></td>
</tr>
<tr>
<td>Dimensions: 4th generation Tripleshield™ technology</td>
<td>Dimensions: up to 660 VAC, 90 AAC, 18000 A²s</td>
<td>Dimensions: 25.4 x 43 x 10.5 mm</td>
<td>Dimensions: 58.2 x 44.8 x 28.8 mm, panel mount</td>
<td></td>
</tr>
<tr>
<td>Plastic housing DC versions</td>
<td>Integrated output overvoltage protection</td>
<td>Operational voltage range: 24-480 VAC</td>
<td>Rated operational voltage: up to 660 VAC</td>
<td></td>
</tr>
<tr>
<td>Sensing distance up to 30 mm</td>
<td>Control input ranges: 4-32 VDC</td>
<td>Rated operational current: 3, 5, 5.5, 10 AAC</td>
<td>Rated operational current: 25, 50, 75, 100, 125 AAC</td>
<td></td>
</tr>
<tr>
<td>Approvals/Marks: CE - cULus - ECOLAB</td>
<td>Approvals/Marks: CE - cULus - VDE</td>
<td>Control input ranges: 4-32 VDC, 20-280 VAC</td>
<td>Control input ranges: 4-32 VDC, 20-275 VAC (24-190 VDC)</td>
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<tr>
<td><strong>MAIN FEATURES</strong></td>
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<tr>
<td>100 kA short circuit current rating</td>
<td>100 kA short circuit current rating</td>
<td>Integrated heatsink [RGC1..], without heatsink [RG1..]</td>
<td>Integrated heatsink (RGC1..), without heatsink (RG1..)</td>
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</tr>
<tr>
<td>Optional overtemperature protection</td>
<td></td>
<td></td>
<td>100 kA short circuit current rating</td>
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</tr>
</tbody>
</table>

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

### 1-ph 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 A, 18000 A²s
  - Integrated output overvoltage protection
  - Control input range: 4-32 VDC
  - Approvals/Marks: CE - EAC - cULus [RGC1S] - cULus [RGS1S] - CSA

**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 A, 65 A/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

### 3-phase general purpose soft starters
- **RSGD**
  - Operational voltage range: 187-440 VAC, 187-660 VAC
  - Operational current range: 12 A, 4000 AAC
  - Motor ratings: 11 kW @ 400 VAC, 25 HP @ 600 VAC
  - Control voltage: 24 VAC/DC, 110-400 VAC
  - Serial communication (Modbus 2-wire)
  - Approvals/Marks: CE - cULus - CCC - EAC

**MAIN FEATURES**
- Ease of use and setup
- 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 SIV control
  - Drive voltage ratings: 100-120 VAC; 200-240 VAC; 380-480 VAC
  - Drive kW rating: 0.4 kW - 11 kW
  - Approvals/Marks: CE - cULus

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

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

### CERTUS configurable safety 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 EBM
  - LOG file with 5 configuration modifications
  - Connection with other exp. units via rear bus

**MAIN FEATURES**
- Also available 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, SilLe 3, PL e, Cat.4, CE, TUV, cULus

### CERTUS configurable I/O expansion modules
- **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 EBM, test outputs

**MAIN FEATURES**
- Also available 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, SilLe 3, PL e, Cat.4, CE, TUV, cULus

### CERTUS speed monitoring modules
- **CES**
  - Exp. units to monitor speed (PL e): Zero speed, Altas speed, Speed range, Motion direction; rotation / transition.
  - RS485 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
Our product range

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<th>Certus multifunction safety module</th>
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<th>Multifunction monitoring relays with NFC</th>
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<td><strong>CM40D0A</strong> / <strong>CM30D1A</strong></td>
<td><strong>ESI</strong></td>
<td><strong>DPD02</strong></td>
</tr>
<tr>
<td>• Dimensions: 81 x 22.5 x 99.5 mm</td>
<td>• 4 OSSD safety outputs (CM40D0A)</td>
<td>• Improving safety for applications requiring access to remain closed and locked until potential hazards have stopped or come to a predetermined safe state</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>• Standards compliance. SIL 3 in accordance with EN 13849-1, interlock type 2 in accordance with EN ISO 14119</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>• Approvals/Marks: UL - CSA - CCC</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>• Approvals/Marks: CE - cULus - IMQ</td>
<td>• 2 SPDT BA relay outputs</td>
</tr>
<tr>
<td><strong>MAIN FEATURES</strong></td>
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</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>• Ensures protection in inertia machinery</td>
<td>• NFC programming</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), SILs 3 (IEC 61508)</td>
<td>• Prevents entry into a dangerous area until the unlock signal</td>
<td>• Up to 10 configurable setpoints</td>
</tr>
<tr>
<td>• 4 PL e (ISO 13849-1), SIL 3 (IEC 62061), SILs 3 (IEC 61508)</td>
<td>• Approval by TÜV</td>
<td>• Manual unlock device for emergency</td>
<td>• Apps for Android and Windows PC programming</td>
</tr>
<tr>
<td>• Approval by TÜV</td>
<td>• Manual or automatic start selectable</td>
<td>• Block controlled by solenoid</td>
<td></td>
</tr>
<tr>
<td>• Manual or automatic start selectable</td>
<td><strong>DIB01</strong> / <strong>A82</strong></td>
<td><strong>DIA53</strong></td>
<td><strong>CM22D0A</strong></td>
</tr>
<tr>
<td>• Dimensions: 81 x 22.5 x 99.5 mm</td>
<td>• Dimensions: 22.5 mm DIN-rail mounting enclosure</td>
<td>• Dimensions: 81 x 17.5 x 67.2 mm</td>
<td>• Up to 4 OSSD safety outputs</td>
</tr>
<tr>
<td>• 3-phase monitoring relay for phase sequence and phase loss (DPA01)</td>
<td>• 120 VAC to 480 VAC Delta &amp; Star Mains</td>
<td>• Dimensions: 81 x 22.5 x 99.5 mm</td>
<td>• 2 OSSD auxiliary outputs</td>
</tr>
<tr>
<td>• TRMS 3-phase over and under voltage, phase sequence and phase loss monitoring relays (DPB01)</td>
<td>• Voltage and frequency monitoring</td>
<td>• DIN-rail housing</td>
<td>• Safety solution for enhanced safety and high protection in inertia machinery</td>
</tr>
<tr>
<td>• Approvals/Marks: CE - UL - CSA</td>
<td>• 2 SPDT BA relay outputs</td>
<td>• Compact dimensions, 1 DIN, W x H x D: 18 x 90 x 63 mm</td>
<td>• Selectable pre-set delayed safety outputs, set via the hex-switch (DPB01)</td>
</tr>
<tr>
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</tr>
<tr>
<td>• Selection of measuring range by DIP-switches (DPB01)</td>
<td>• Multicolour LED with alarm discrimination</td>
<td>• 2 wire connection</td>
<td>• Programmable latching or inhibiting at set level</td>
</tr>
<tr>
<td>• Detects when all phases are present and have the correct sequence (DPA01)</td>
<td>• Auto or manual, local or remote reset, test function</td>
<td>• Knob adjustable setpoint</td>
<td>• LED indication for relay, alarm and power supply ON</td>
</tr>
<tr>
<td>• LED indication for relay, alarm and power supply ON</td>
<td>• Ready for reset function</td>
<td>• Integrated solid state NPN PNP output</td>
<td>• A82: easy interface to PLC or setpoint relays</td>
</tr>
</tbody>
</table>

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

#### Our product range

<table>
<thead>
<tr>
<th>3-phase power analysers</th>
<th>Energy analysers</th>
<th>1 and 3-phase energy transducers</th>
<th>Timers</th>
</tr>
</thead>
<tbody>
<tr>
<td>WM20</td>
<td>EM210</td>
<td>ET112 / ET340</td>
<td>DAA51 / DMB51</td>
</tr>
<tr>
<td>DIN-rail switch mode power supplies</td>
<td>Low profile power supplies</td>
<td>Metal enclosed power supplies</td>
<td>DC UPS</td>
</tr>
<tr>
<td>SPD</td>
<td>SPM</td>
<td>SPPC</td>
<td>SPUC / SPUBC</td>
</tr>
<tr>
<td>DIN-rail mounting</td>
<td>Compact DIN-rail housing - 1/3/4/5 Din width</td>
<td>Output power from 25 W to 800 W</td>
<td>Power supply, UPS and battery charger “All in one” (SPUBC), UPS controller (SPUC)</td>
</tr>
<tr>
<td>1-phase (5-480 W), 2-phase (100 W), 3-phase (120-960 W)</td>
<td>Universal input from 90-264 VAC</td>
<td>Input 110/240 VAC single phase</td>
<td>12 or 24 VDC 5 A output (up to 30 A SPUC)</td>
</tr>
<tr>
<td>Rated input voltage: 85-264 VAC</td>
<td>Integrated short circuit and overload protection with built-in input filters</td>
<td>Short circuit, overload and overvoltage protection</td>
<td>Power boost up to 2 times rated output, permanent (SPUC)</td>
</tr>
<tr>
<td>Approvals/Marks: CE - TUV - cULus - UL1310 Class 2 (-92W), ISA12.12.1 Class 1, Div 2</td>
<td>High efficiency of up to 89%</td>
<td>PFC function available &gt;75 W</td>
<td>Built-in battery status, complete diagnosis (SPUBC)</td>
</tr>
<tr>
<td>MAIN FEATURES</td>
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</tr>
<tr>
<td>Power Factor Correction (PFC)</td>
<td>Compact design for installation within distribution box with ratings up to 100 W</td>
<td>Adjustable output +/-10%</td>
<td>Power supply independent from charger (SPUBC), to be used in addition to 12 or 24 V power supply (SPUC)</td>
</tr>
<tr>
<td>Parallel connection</td>
<td>Intuitive visual and electrical indications</td>
<td>Compact dimensions</td>
<td>Remote indication for battery operation and battery low</td>
</tr>
<tr>
<td>DC OK output</td>
<td>Selected models comes with UL 1310 Class 2 classification</td>
<td>Wide operating temperature range up to 70°C</td>
<td>“Start from battery” and “Empty battery charging” features (SPUBC)</td>
</tr>
</tbody>
</table>

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Packaging Machinery (text continues)