Solutions

Agriculture
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 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.

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.
DESIGNED TO MEET MARKET REQUIREMENTS

Agricultural mechanization has brought major changes to agriculture and eased the burden on farm workers. Advances in tractor technology have made tractors more versatile and suitable for a wider range of farming tasks.

Machinery for ploughing and cultivation have contributed to boosting production. Special machinery is used to plant seeds and apply fertilizer through mulch at the correct depth. In irrigation, technologies such as micro sprinklers or drip irrigation, which save water and consume less power, are the environmentally friendly solutions for now and the future.

The global agricultural machinery industry provides more support to smallholders and other farmers with equipment designs and models that suit their needs and those of service providers.

Carlo Gavazzi offers, among other things, a wide range of sensors to measure speed and rotational direction of wheels in farm tractors, harvesting machines etc.

Carlo Gavazzi’s capacitive sensors are widely used for level measurements of seed, fodder and liquids in silos and in animal feeding machinery. Ultrasonic sensors are used mainly for level measurements of liquids (e.g. milking machinery).

Reliable irrigation systems are highly important for agricultural production. The well proven Dupline® fieldbus with its up-to-the-minute technology, has become known as an extremely user-friendly and flexible fieldbus able to transmit signals over long distances - features that make Dupline® ideal as a fieldbus for irrigation systems.

Finally – thanks to Carlo Gavazzi’s wide product range – most agricultural application challenges can be met by one supplier.
Agricultural machinery needs reliable and durable parts and components able to work long hours in difficult outdoor conditions, exposed to every kind of stress. Carlo Gavazzi offers a comprehensive range of components for most applications in agricultural and earth-moving vehicles, from passive magnetic pick up sensors (PA2PK) to inductive proximity sensors. The pick up sensors detect and measure the speed of phonic or toothed wheels and generally of any rotating device built-in a ferromagnetic material and provided with slots and cogs, for example in engines and in tractors. Inductive sensors are used for non-contact measurements - for example to count revolutions of the axle in machinery or to monitor the bucket position in a backhoe loader. 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. Safety and positional mechanical switches in different versions and configurations are also available. Capacitive level sensors (CD34CNF series) mounted outside plastic tanks, can detect the level of water-based chemicals while ignoring foam, film or build-up. Ultrasonic sensors (UA series) are also used to monitor sprayer heights in self-propelled row-crop sprayers. A particular application of ultrasonic sensors with analog output is control of the driving direction of the wagon or a motorized chassis equipped with one or more fixed or mobile platforms, for example for harvesting fruit.
The CA18 and CA30 CAN/CAF sensors are excellent for accurate measurement of dry grain regardless of degree of humidity. The sensor provides a stable and precise signal of yield per unit area. Knowing these areas makes it easy to adjust the amount of fertilizers and herbicides in exactly the right way. As a result, cost can be reduced and the environmental impact minimized.

The capacitive sensors EC30 (AC version) have a long sensing distance that allows easy detection of the grain.

The VC11/12 sensors are available in multivoltage power supply with relay output and used in many agricultural applications.

The conductive level program by Carlo Gavazzi comprises a complete range of intelligent conductive level controllers for liquids such as in slurry tanks (CL-series), the CLH electrode probes (3 or 5 electrodes). Various adjustment possibilities enable the controller to perform filling operations, emptying operations or a combination of the two.
Feeding distribution systems are critical to the quality and safety of farms with pig, poultry and dairy sectors. It is important to feed all the chickens at the same time and manual handling is eliminated.

The distribution is controlled by sensors (capacitive, inductive, photoelectric), normally combined with solid state relays and soft starters. The capacitive level sensors with IO-link are suitable for this application as they provide easy diagnostic and settings, increasing uptime of the feeding systems. Thanks to their advanced settings it is possible to detect the type of feed, preventing faults that might occur when the feed supplier changes.

The VC11/12 sensors are able to directly drive a contactor or a small motor. The PD30 Stainless steel sensors work perfectly even in the harshest environments. The high-quality stainless steel housing guarantees maximum mechanical resistance, and prescribed cleaning schedules are smoothly met without costly machine downtime. Ultrasonic sensors or capacitive sensors control the levels in the silos and monitor emptying to ensure the efficiency of the process. Carlo Gavazzi soft starters (RSGD) soft start and soft stop pumps, screw feeders, ventilators as well as chillers (RSBT).

Temperature control in animal farms is optimised with the RGC1P proportional controller which, through an analog input, regulates the power of heating lamps. The RGC3P (in special version) is used for optimal speed control of ventilators in egg incubators.
Traditional irrigation systems are characterized by complex and expensive wiring. The Carlo Gavazzi Dupline® irrigation bus reduces installation costs and increases flexibility in agricultural irrigation systems, where the valves are usually distributed over a large area. Any type of irrigation controller, whether it is a PLC, PC or dedicated controller, can use Dupline® as a remote I/O system. The wiring topology is completely free, with no limitation to the number and length of branches. The Dupline® Fieldbus is the ideal system to control levels, monitor pumps and activate valves over a large area and from a distance.

The RSWT soft starter series is a 3-phase soft starter designed to limit the starting current and water hammering in centrifugal pumps. Minimal settings and compact design facilitate the replacement of star-delta and mechanical contactors. The RSWT’s self learning algorithm ensures that the pump starts with optimal settings even under different load conditions. The HDMS is a single phase dynamic motor soft starter for borehole pumps. The innovative HDMS algorithm (patent pending) is designed to reduce the start current by 70% with respect to a direct on line start resulting in less disturbances to generators or weak voltage grids. With HDMS the start capacitor is no longer required as it generates sufficient starting torque through a unique algorithm using IGBTs.

The DEA71 and DEB71 protect electric installations against the risk of fire or electrocution due to current leaks. They are ideal for protection on pumps, submersible pumps and motors. They detect insulation and/or grounding failure via the external core balance current transformer (CTG), provide a warning signal at 60% and trip the MCB when the fault current exceeds the set fault current.
### Our Product Range

#### Capacitive Sensors
- **CA18CAN/CAP**
  - TRIPLESHIELD™ sensor protection
  - Adjustable sensing distance: 0.5-12 mm (M18)
  - Plastic housing, AC versions
  - Automatic detection of NPN or NPN load
  - Selectable "make or break" switching by means of Teach function
  - Approvals/Marks: CE - UL - CSA

- **CA30CAN/CAP**
  - TRIPLESHIELD™ sensor protection
  - Sensing distance up to 25 mm
  - Automatic detection of NPN or PNP load
  - Selectable "make or break" switching by means of Teach function
  - Approvals/Marks: CE - UL - CSA

- **VC11/12**
  - Capacitive level sensors for solid, fluid or granulated substances
  - Dimensions: 8 x 16 x 34 mm
  - Power supply: 10-30 VDC
  - Output: NPN / PNP / NO or NC
  - Power supply from 208 to 480 VAC (± 15%)
  - Connectivity: Cable or M8 4-pin Pigtail
  - Approvals/Marks: CE - cULus - ECOLAB

- **CD34CNF**
  - Dimensions 8 x 16 x 34 mm
  - Power supply: 10-30 VDC
  - Output: NPN / PNP / NO or NC
  - Power supply from 208 to 480 VAC (± 15%)
  - Connectivity: Cable or M8 4-pin Pigtail
  - Approvals/Marks: CE - cULus - ECOLAB

- **CB32**
  - TRIPLESHIELD™ sensor protection
  - Adjustable sensing distance: 4-20 mm
  - Dimensions: Ø32
  - Capacitive level sensors for solid, fluid or granulated substances
  - Protection against dust and humidity
  - Increased temperature stability
  - Sensing face can withstand temperatures up to 120°C

- **CA18..IO / CA30..IO**
  - TRIPLESHIELD™ sensor protection
  - Sensing distance up to 25 mm
  - Detects water-based liquids (up to 50 mS)
  - Automatic adaptation to tank wall thickness
  - Eliminates 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 reverse polarity

- **VC11/12**
  - Capacitive level sensors for solid, fluid or granulated substances
  - Dimensions: Ø32
  - Adjustment of sensing distance: 4-12 mm
  - Multivoltage supply: 20.4 to 255 VAC/DC
  - Approvals/Marks: CE - cULus

- **CA18CL**
  - TRIPLESHIELD™ sensor protection
  - Sensing distance: 0.5-12 mm (M18)
  - Plastic housing, AC versions
  - Automatic detection of NPN or PNP load
  - Selectable "make or break" switching by means of Teach function
  - Approvals/Marks: CE - UL - CSA

- **EC30**
  - TRIPLESHIELD™ sensor protection
  - Sensing distance up to 25 mm
  - Automatic detection of NPN or PNP load
  - Selectable "make or break" switching by means of Teach function
  - Approvals/Marks: CE - UL - CSA

- **CA18CAN/CAF**
  - Dimensions: M18 / M30
  - Plastic housings, DC versions
  - Adjustable sensing distance up to 20 mm
  - Protection: short circuit, transient and reverse polarity
  - Degree of protection: IP67, IP68 and IP69K
  - Approvals/Marks: CE - cULus - Ecolab

### MAIN FEATURES

- Approved acc. to ATEX directive for operation in potentially explosive dust
- Relay output
- With or without adjustable time delay
### Our product range

#### Pick up sensors

**PA2PK**
- Dimensions: diameter M20 x 1.5 length 60, 70, 107 mm
- Pulse output function
- Cylindrical nylon with 30% glass fiber
- Protection degree IP65
- Approvals/Marks: CE

**MAIN FEATURES**
- AMP connector Superseal
- Suitable for applications where the measurement of gear speed is required.
- Operating frequency > 100 Hz

#### Ultrasonic sensors

**UA18 / UA30**
- Dimensions: M18, M30
- Ultrasonic sensors with integrated amplifier providing a digital and/or analog output and integrated amplifier
- Up to 6 m sensing distance
- Switching output with two setpoints
- Housing material: plastic or AISI316L stainless steel
- Approvals/Marks: CE - cULus - CSA

**MAIN FEATURES**
- Excellent EMC performance and precision
- Detects clear, transparent and shiny targets, solid objects, liquid or granules.
- Protection: short circuit, transients and reverse polarity

#### Conductive level controllers / probes

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

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

#### Photoelectric sensors

**ICB12 / ICB18 / ICB30**
- M12, M18 and M30 Nickel-brass housing in short or long barrel lengths
- 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 - cCSAus

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

**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

**MAIN FEATURES**
- IP69K / ECOLAB approved / CE-marking / cULus approved acc. to UL508
- Diagnostic LED indication (green and yellow LED)
- Short circuit, reverse polarity and overload protection

**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

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

### Inductive sensors

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
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<tbody>
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<td>ICS12 / ICS18 / ICS30</td>
<td>M12, M18 and M30 stainless steel housing, Sensing distance from 2 mm up to 22 mm, Degree of protection: IP67, IP68 and IP69K, Approvals/Marks: CE - cULus - cCSAus - ECOLAB</td>
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### Magnetic sensors

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<td>S series</td>
<td>Several operating distances thanks to the wide range of magnetic units (CL series), Easy and fast mounting</td>
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### 1-phase solid state switches

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<th>Model</th>
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<tr>
<td>RG1 / RGC1</td>
<td>Product width: 17.5 mm up to 70 mm, DIN rail or panel mount, Ratings: up to 660 VAC, 90 AAC, 18000 A2 s, Integrated output overvoltage protection, Control input ranges: 4-32 VDC, 20-275 VAC (24-190 VDC)</td>
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### 1 and 3-phase proportional controllers

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<tr>
<td>RGC1P / RGC2P / RGC3P</td>
<td>Product width: 35 mm up to 70 mm, DIN or panel mount, 1-phase with heat sink (RGC1P) or for panel mount (RGS1P), 3-phase with heat sink (RGC2P, RGC3P), Ratings: up to 660 VAC, 90 A (1-phase), 75 A/pole (2-phase), 65 A/pole (3-phase), Control input: 0-20 mA, 4-20 mA, 12-20 mA, 0-10 VDC, 0-5 VDC, 1-5 VDC, Approvals/Marks: CE - EAC - cULus - UR (RGS1P) - CSA (RGS1P) - CCC (RGC2P, RGC3P)</td>
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### 3-phase scroll compressor soft starters

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<tr>
<td>RSBD / RSBT</td>
<td>Enhanced current reduction capability with patented auto-adaptive algorithm, Motor rating: 3-phase up to 45 kW @ 400 V, Integrated diagnostic functions, 2- and 3-phase controlled solutions, Approvals/Marks: cUL listed</td>
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<td>RSGD</td>
<td>Operational voltage range: 187-440 VAC, 187-650 VAC, Operational current range: 12 AAC up to 100 AAC, Control voltage: 24 VAC/DC, 110-400 VAC, Serial communication (Modbus 2-wire) (RSGD 75 mm models), Approvals/Marks: cULus - CCC - EAC</td>
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### 1-phase dynamic starter for submersible pumps

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<td>HDMS</td>
<td>Operational current: Up to 37 AAC, Operational voltage: 110 - 230 VAC 50/60 Hz, Current reduction vs DOL: Up to 75%, Compliant with residential (Class B) limits for emissions, Approvals/Marks: cULus approved</td>
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### 1-phase solid state soft starter for pumps and ventilators

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<td>RGTS</td>
<td>Operational current: Up to 25 AAC, Operational voltage: 110 - 230 VAC 50/60 Hz, Current reduction vs DOL: Up to 45%, Fully solid state solution, Approvals/Marks: cULus approved</td>
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### 1-phase solid state soft starter for pumps and ventilators

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</table>
**Our product range**

### 3-phase pumps and ventilators soft starters

- **RSWT**
  - Motor rating: up to 45 kW (90 A)
  - 3-phase controlled & internally bypassed
  - Operational voltage: RSWT40: 220-400 VAC, RSWT60: 220-600 VAC
  - PTC input, Alarm - Top of ramp - Run relay indication
  - Approvals/Marks: cULus - CCC - EAC

**MAIN FEATURES**
- Easy to use and setup
- Self-learning algorithm to improve pump starts/stops
- Integrated overload protection (Class 10)

### Variable frequency drives

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

**MAIN FEATURES**
- Protection from reverse running and phase loss
- 17.5 mm width: the smallest on the market
- Plug and play: no settings needed

### Monitoring relays

- **DPA51**
  - Dimensions: 81 x 17.5 x 67.2 mm DIN-rail housing
  - Phase sequence and loss relay
  - 3-phase AC (own power supply); regenerated voltage
  - Power supply from 208 to 480 VAC
  - Approvals/Marks: UL - CSA - CCC

**MAIN FEATURES**
- Overvoltage/undervoltage setting with alarm ON delay
- 1 DIN module width. Suitable for NORM panels
- Switch mode power supply

- **DPB52**
  - Dimensions 81 x 17.5 x 67.2 mm DIN-rail housing
  - Phase sequence and phase loss, regenerated V detection
  - 3 phase AC (own power supply)
  - Power supply from 125 to 624 VAC (rated 208 to 480 VAC)
  - Approvals/Marks: UL - CSA - CCC

**MAIN FEATURES**
- Overvoltage/undervoltage setting with alarm ON delay
- 1 DIN module width. Suitable for NORM panels
- Switch mode power supply

### Monitoring relays

- **DIB02 / PIB02**
  - Dimensions: 22.5 mm for DIN-rail [DIB] or 35.5 mm for plug in [PIB]
  - Overcurrent or undercurrent detection
  - DC current measurement by means of external shunt
  - Power supply 115/230 VAC, 24/48 VAC, 24 VDC, 48 VDC
  - Adjustable time delay

**MAIN FEATURES**
- Motor protection from overload
- DC or AC current measurement
- 3-phase overcurrent measurement with MP3 CT

### Earth leakage relays

- **DEA71**
  - Dimensions: 35 mm Mini-DIN Housing
  - 2 SPDT 5 A Relay Outputs
  - Disconnected CT detection
  - Power supply from 24 V to 240 VAC
  - Approvals/Marks: UL and CE (IEC EN 60947-2 Annex M Compliant)

**MAIN FEATURES**
- Fixed Trip Current 30 mA or 300 mA
- Remote test / reset push button input
- Warning indication and output

### Earth leakage relays

- **DEB71**
  - Dimensions: 35 mm Mini-DIN Housing
  - 2 SPDT 5 A Relay Outputs
  - LED leakage level indicator
  - Power supply from 24 V to 240 VAC
  - Approvals/Marks: UL and CE (IEC EN 60947-2 Annex M Compliant)

**MAIN FEATURES**
- Adjustable Trip Current Setting from 30 mA to 30 A
- Remote test / reset push button input
- Warning indication and output
Agriculture

Our product range

<table>
<thead>
<tr>
<th>Core balance current transformers</th>
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<th>Timers</th>
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<tbody>
<tr>
<td><strong>CTG</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• 6 sizes from 35 mm to 210 mm</td>
<td></td>
<td></td>
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<tr>
<td>• Closed Round Core type</td>
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<td></td>
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<tr>
<td>• Screw terminals connection</td>
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<td></td>
<td></td>
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<tr>
<td>• 1:1000 ratio</td>
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<td></td>
</tr>
</tbody>
</table>

**MAIN FEATURES**

• 1:1000 current reduction ratio
• Current transformer
• Single and three phase

| **E83-2050**                       |                      |                     |        |
| • DIN-rail or surface mounting 22.5 mm Euronorm housing with 12 mm hole for current measurement | | | |
| • AC current transformer with 4-20 mADC secondary | | | |
| • 1-phase AC current measurement | | | |
| • Power supply from 10 to 40 VDC | | | |
| • Approvals/Marks: UL | | | |

**MAIN FEATURES**

• 7 knob-selectable ranges from 5 to 50 AAC
• Easy interface to PLC or monitoring relays

| **CTD / TADK**                     |                      |                     |        |
| • CTD: currents from 40 to 4000 A  |                      |                     |        |
| • TADK: 1-250 A                    |                      |                     |        |
| • Removable panel fixing clips     |                      |                     |        |
| • DIN-rail and panel mounting facility | | | |
| • Double screw terminals (CTD)    |                      |                     |        |
| • Sealable covers                  |                      |                     |        |
| • Case: ABS, self-extinguishing level UL 94 V-O | | | |
| • Accuracy class: 0.5              |                      |                     |        |

**MAIN FEATURES**

• Wound primary / solid core or split-core
• Compliance with IEC 60185, VDE 0414-1 regulations
• Removable DIN-rail mounting holder

| **CTD / TADK**                     |                      |                     |        |
| • CTD: currents from 40 to 4000 A  |                      |                     |        |
| • TADK: 1-250 A                    |                      |                     |        |
| • Removable panel fixing clips     |                      |                     |        |
| • DIN-rail and panel mounting facility | | | |
| • Double screw terminals (CTD)    |                      |                     |        |
| • Sealable covers                  |                      |                     |        |
| • Case: ABS, self-extinguishing level UL 94 V-O | | | |
| • Accuracy class: 0.5              |                      |                     |        |

**MAIN FEATURES**

• Wound primary / solid core or split-core
• Compliance with IEC 60185, VDE 0414-1 regulations
• Removable DIN-rail mounting holder

| **DAA51 / DM851**                  |                      |                     |        |
| • Dimensions: 81 x 17.5 x 67.2 mm DIN-rail housing | | | |
| • Delay on operate function (DAA), multifunction (DM8) | | | |
| • Combined AC and DC power supply | | | |
| • Repeatability: < 0.2%             |                      |                     |        |
| • Approvals/Marks: UL - CSA - RINA | | | |

**MAIN FEATURES**

• Delay on operate/release, interval with manual/automatic start
• Double interval, asymmetrical recycler (ON or OFF first)
• Timing range from 0.1 s to 100 h

---

**Timers**

<table>
<thead>
<tr>
<th><strong>FMB01 / FAA</strong></th>
<th><strong>CPT</strong></th>
<th><strong>EM340</strong></th>
<th><strong>EM24</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Dimensions: 48 x 48 mm housing for 11 pin socket or panel mounting</td>
<td>• Dimensions: 83.5 x 45 x 98.5 mm DIN-rail housing</td>
<td>• 3 DIN modules</td>
<td>• 3-phase energy analyser with direct connection</td>
</tr>
<tr>
<td>• Multifunction timer with 7 functions</td>
<td>• Accuracy 0.5 % (voltage, current)</td>
<td>• Backlight touch LCD</td>
<td>• Direct connection up to 65 A or by CT</td>
</tr>
<tr>
<td>• DPDT output</td>
<td>• Measurement by CT and VT</td>
<td>• Measurement of voltage, current, power, power factor and frequency</td>
<td>• Dimensions: 4-DIN-rail module housings</td>
</tr>
<tr>
<td>• Universal power supply</td>
<td>• Front protection degree IP20</td>
<td>• Bi-directional energy metering, 3x 8-digit, cl. B (EN50470)</td>
<td>• Class B (EN50470)</td>
</tr>
<tr>
<td>• Approvals/Marks: cUR - CSA</td>
<td>• Analogue, digital, pulse or serial outputs available</td>
<td>• Measuring inputs: 230 to 400 V AC, 65 A</td>
<td>• Pulse open collector output</td>
</tr>
</tbody>
</table>

**MAIN FEATURES**

• Front knob-adjustable time setting
• Selectable time ranges from 0.05 s to 300 h
• Delay on operate/release, ON/OFF first symmetrical recycle, single/double interval on trigger open/close

**MAIN FEATURES**

• Compact-size power transducer
• Provides electrical variables set to a PLC to manage compressors and other loads
• Suitable for on-board panel installation

**MAIN FEATURES**

• Self-powered
• Dual tariff management
• Pulse output or RS485 Modbus or M-bus port
• Sealable terminal covers

**MAIN FEATURES**

• Direct measurement in a very compact housing to save space
• Suitable for measuring generated and consumed energy
• On request, MID annex D certification available
• M-bus port integrated in the meter without external gateways

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

<table>
<thead>
<tr>
<th>Dupline® digital I/O modules</th>
<th>Dupline® valve controls</th>
<th>Dupline® converters</th>
<th>Dupline® test units</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GH3440 4412</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Module for controlling 3-wire latching valves</td>
<td>• Module for controlling 3-wire latching valves</td>
<td>• Generates 28 V Hi-Line signal</td>
<td></td>
</tr>
<tr>
<td>• 2 outputs for open and close valve</td>
<td>• 2 outputs for open and close valve</td>
<td>• Supplies and controls up to 64 valve I/O modules over two wires</td>
<td></td>
</tr>
<tr>
<td>• 2 inputs for e.g., pulse counting, tamper switch or status feedback</td>
<td>• 2 inputs for e.g., pulse counting, tamper switch or status feedback</td>
<td>• LED indications for Dupline® carrier, Hi-Line carrier and supply</td>
<td></td>
</tr>
<tr>
<td>• Built-in charge capacitor, gas arrestor and microcontroller</td>
<td>• Built-in charge capacitor, gas arrestor and microcontroller</td>
<td>• Can be buried in the ground at the actual valve position</td>
<td></td>
</tr>
<tr>
<td>• Can be buried in the ground at the actual valve position</td>
<td>• Can be buried in the ground at the actual valve position</td>
<td>• Built-in Gas-arrestor for lightning protection</td>
<td></td>
</tr>
<tr>
<td>• Supplied by bus – no external power needed</td>
<td>• Supplied by bus – no external power needed</td>
<td>• Up to 7 km transmission distance</td>
<td></td>
</tr>
<tr>
<td><strong>GH3485 0000</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Generates 28 V Hi-Line signal</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Supplies and controls up to 64 valve I/O modules over two wires</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• LED indications for Dupline® carrier, Hi-Line carrier and supply</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>GHTU8</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Portable test unit</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• 12 key tactile keyboard</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Dual group reading</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Analog BCD reading</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### MAIN FEATURES

- Built-in microcontroller for correct coil-pulsing and charge monitoring
- Valve closes in case of bus fault
- Built-in Gas-arrestor for lightning protection
- Up to 7 km transmission distance
- Monitoring of Hi-line channel status with LCD display

### Switching power supplies

<table>
<thead>
<tr>
<th>SPD</th>
<th>SPDM</th>
<th>SPM</th>
<th>SPPC</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Output power 5 W to 48 W</td>
<td>• Output power 30 W to 240 W</td>
<td>• Output power from 7.5 W to 100 W</td>
<td>• Output power from 15 W to 800 W</td>
</tr>
<tr>
<td>• Universal input range of 110-240 VAC, or up to 370 VDC</td>
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<td>• Universal input range of 110-240 VAC</td>
</tr>
<tr>
<td>• Short circuit, overload and overvoltage protection</td>
<td>• Short circuit, overload and overvoltage protection</td>
<td>• Short circuit and overload protection</td>
<td>• Short circuit, overload and overvoltage protection</td>
</tr>
<tr>
<td>• PFC &gt; 100 W</td>
<td>• PFC &gt; 100 W</td>
<td>• Derating starts from +60°C</td>
<td></td>
</tr>
<tr>
<td>• UL1310 Class 2 (up to 90 W)</td>
<td>• UL1310 Class 2 (up to 75 W)</td>
<td>• Approvals/Marks: cULus - TUV - CCC - ISA C1D2</td>
<td>• Approvals/Marks: CE - UL</td>
</tr>
<tr>
<td>• Approvals/Marks: cULus - TUV - CCC - ISA C1D2</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### MAIN FEATURES

- DC OK signal
- Parallel connection
- Screw, spring or detachable terminal connectors
- Saves up to 20% panel space
- High efficiency and wide operating temperature range
- Screw or spring terminal connectors
- Class I DIV2
- UL1310 Class 2 (up to <91 W)
- Adjustable output +/- 10%
- Low voltage LED indications
- Adjustable output +/- 10%
- Compact dimensions
- Wide operating temperature range up to 70°C
### Our product range

<table>
<thead>
<tr>
<th>DC UPS</th>
<th>Industrial relay</th>
<th>Limit switches</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Image" /></td>
<td><img src="image2.png" alt="Image" /></td>
<td><img src="image3.png" alt="Image" /></td>
</tr>
</tbody>
</table>

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

**MAIN FEATURES**
- Ultra slim, 5 mm width
- DIN-rail mount (ZRLS socket) or PCB mount (ZRLP)
- Surge voltage of up to 6 kV

#### RSLM
- SPST or SPDT option
- Contact rating for 6 A, 250 VAC / 30 VDC
- Coil voltage of 12 VDC to 60 VDC
- Built-in battery diagnosis
- Approvals/Marks: VDE - CQC - cURus - CSA

**MAIN FEATURES**
- Ultra slim, 5 mm width
- DIN-rail mount (ZRLS socket) or PCB mount (ZRLP)
- Surge voltage of up to 6 kV

#### PS
- Material: plastic, metal
- Horizontal / vertical control available
- Minimum actuation force / torque
- Approvals/Marks: CE - UL - CSA

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

**MAIN FEATURES**
- Ultra slim, 5 mm width
- DIN-rail mount (ZRLS socket) or PCB mount (ZRLP)
- Surge voltage of up to 6 kV

**MAIN FEATURES**
- Mechanical life > 15,000,000 cycles
- Precise operating point