Solutions

Automatic Doors and Access Controls
ABOUT CARLO GAVAZZI

Carlo Gavazzi Automation is a multinational electronics group active in the design, manufacture 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.
DESIGNED TO MEET MARKET REQUIREMENTS

The market for automated doors is growing and becoming more specialised. The type of product that fits best with a particular application is determined by frequency of operation, speed of operation required, new versus existing construction, traffic flow and cost.

Automatic doors are a normal feature in many commercial buildings and infrastructures such as shopping centres and airports, as well as in industrial environments such as factories and also in residential buildings. Although they come in a variety of types, including sliding, swing, folding, up-and-over etc.; they all need to conform to the highest standards of safety.

In an industrial environment, which is the largest part of our business, automatic doors enable the set temperature in cold storage rooms to be maintained by fast opening and closing, leading to considerable energy efficiency and reduction of costs. Automated doors in commercial facilities are the preferred means of access for all users, not only people with disabilities, and are a significant aid to accessibility. Moreover, their use minimizes heat or air conditioning loss, maintaining a constant temperature and consequently saving money.

This brochure highlights the following market applications: industrial doors, garage doors, pedestrian doors, access controls, gates and barriers, intended for installation in areas where the main purpose is to give safe access for goods and accompanied vehicles, in industrial and commercial premises and in residential garages.

Carlo Gavazzi has developed its expertise in the Industrial Door segment of the market and our products are designed and manufactured in full compliance with both North American and European standards.

Our product families are certified to meet EN 13241-1, EN 12978, EN 12445, EN 12453 and UL 325 regulations for safety in the use of power operated doors such as industrial and garage doors and gates.
Automatic doors in an industrial environment need to conform to the highest standards of safety. Carlo Gavazzi products are designed to meet the latest safety regulations for object and human presence detection. Our sensors are typically installed in shutter, folding, speed and sectional Automatic doors in an industrial environment need to conform to the highest standards of safety. Carlo Gavazzi products are designed to meet the latest safety regulations for object and human presence detection. Our sensors are typically installed in shutter, folding, speed and sectional Automatic doors in an industrial environment need to conform to the highest standards of safety. Carlo Gavazzi products are designed to meet the latest safety regulations for object and human presence detection. Our sensors are typically installed in shutter, folding, speed and sectional Automatic doors in an industrial environment need to conform to the highest standards of safety. 

Carlo Gavazzi products are designed to meet the latest safety regulations for object and human presence detection. Our sensors are typically installed in shutter, folding, speed and sectional doors. We offer the compact, powerful, polarized, retro-reflective PM.. series and the PD86 series photoelectric sensors. These sensors are equipped with a test input that allows the user to test the sensing functions in each door cycle. As well as the retro-reflective sensors, Carlo Gavazzi provides the long range background suppression PD112 series and the new battery-powered emitter of the PD180 series.

In door applications, where speed is important and door movements are frequent, the spiral cable between the moving door and the controller is susceptible to wear and tear. Our Wireless Safety System reduces difficult and costly repairs and avoids...
expensive downtime. Moreover, this system uses 16 different channels in order to prevent cross-talk between adjacent doors. The Wireless Safety System is very flexible and handles different safety edges such as: “Normally Closed” safety edges, “Normally Open” and 8,2 KoHm.

Precise control for the speed and positioning of the doors is ensured by using the RVLF series of Variable speed drives.

Energy savings are attained by reducing the start-up current and maintenance costs are lowered by reducing vibration during start-up.

The brand new DEA71 and DEB71 - modular residual current devices - protect electric installations against the risk of fire or electrocution of people, in case of insulation failure. They are able to detect a leak of current to the Protective Earth by means of the external Core Balance Current Transformer (CTG), provide a warning signal at 60% and trip the MCB, through the relay output, when the leakage exceeds 80% of the set fault current.

The new LD series of loop detectors, thanks to the Automatic Sensitivity Boost (ASB) ensures a reliable detection of high bed vehicles, mainly in factories and warehouses.
The Carlo Gavazzi Wireless Safety System is designed to eliminate the need for traditional spiral cables between the door controller and the door. This device utilizes a bidirectional radio communication with an operating frequency of 2.4 GHz, making it less susceptible to common radio interference.

This system is compatible with a large variety of safety edges and can also be used with the Carlo Gavazzi low consumption photoelectric safety edge sensors. In door-in-door applications, the larger door has to remain shut when the pedestrian door is open. This safety function is monitored by the sub controller’s door-in-door limit switch input by means of our Wireless Safety System.

To prevent a door from closing when an object is present in the doorway, we offer a variety of sensors based on through-beam detection or polarized retro-reflective types. The PD98, PE12.. or PM.., PD86.. sensors are typical examples of sensors designed specifically for automatic doors, taking into account the viewing angles and testing requirements of Europe and North America.

Our polarized retro-reflective sensors integrate the emitter and receiver in the same unit. The emitter generates a modulated light beam, which is retro reflected - rotated 90° - and sensed by the receiver. The output changes status if an object interrupts the light reflected. To increase immunity from objects with highly reflective surfaces, the retro-reflective sensor can be equipped with polarization filters. The receiver cannot be activated by light waves reflected by a shiny surface.
When mounting photoelectric sensors on a large gate, it is necessary to bury the cable from the control panel to the sensor. With the Carlo Gavazzi PD180 through beam sensors, this operation can be avoided, as built-in batteries in the emitter are part of the sensor set. The compact and stylish PD98 series sensors provide a means for easy wall mounting without building the sensor into the wall. The sensing angle reduces light interference and malfunctions or disconnections are revealed. Our new series of sensors, PD140, has been developed with regard to the latest regulations in Europe and North America. These sensors offer state-of-the-art sensing distances of up to 60 m in outdoor applications and, with the unique green laser alignment tool, they can be installed quickly and easily.

One of the most used photoelectric sensors in large and heavy gates is the MOF+S142 system. Specifically designed for these applications this system offers compact size, durability and high detection range.

The WSM/WSS Wireless system for safety edges is also available for gates with a communication distance of 15 m. The main module can control up to 6 sub modules i.e. 12 safety edges. Separated outputs for opening and closing edges, as well as one alarm output for low battery indication.

The new LD series loop detectors offer many features designed to simplify the installation process and are also equipped with diagnostic capability to ease troubleshooting while providing a reliable and efficient vehicle detection.
Doors & Access controls

Pedestrian doors

It is mandatory to protect people standing in the doorway of a pedestrian door. For this purpose, Carlo Gavazzi offers the Guardian series, a motion and presence visual sensor which monitors people approaching the entrance, giving a signal to the door controller to open/close the door. These overhead sensors combine automation and safety in both curved and straight sliding door installations. Equipped with the latest digital video camera technology, this is the only device with uni- and bi-directional modes available in one single sensor. These sensors operate either with motion zone – detecting moving objects only – and a presence zone, detecting both movement and presence. The Guardian series has been designed to ensure perfect door control and, at the same time, to watch over entrance and exit areas, safeguarding the people who use them. By means of the smart technology used, the Guardian series is able to ignore cross traffic and to self-adjust, according to changes in weather conditions and environment.

The Guardian series is TÜV-certified according to DIN 18650-1 (prEN 16005), EN13241-1, EN12978, EN61508, ENISO13849-1:2008. It is also cURus approved according to UL325, CSA-C22.2 no.247.

The PD70 sensor is a traditional through-beam sensor set with test input, designed to fit into the narrow aluminium profiles of pedestrian doors.

Additionally, Carlo Gavazzi offers the PD112 series, which is a ‘background suppression’ sensor, which is typically positioned above the door, turning its detection field down to the floor. Black object detection is assured as far as 2m, while grey and white objects are detected up to 2.5m, a record distance that places the PD112 series among the longest range background suppression sensors designed for pedestrian doors in the world.
Access controls

Carlo Gavazzi’s PB10 and PE12 series sensors represent state-of-the-art technology in this field. They are available in two main versions: the PE12 series (Ø12mm) with an innovative snap-in four-spring head for quick installation, and the PB10 series (Ø10mm) with a high environmental rating and a smooth cylindrical housing.

The long detecting range of the PD30 sensor also allows it to operate through dark glass, where its position can be hidden.

Access control systems are increasingly used to restrict and record unauthorized access. In optical turnstiles, photoelectric sensors detect people passing through.

In subways, security buildings and fairgrounds, access controls such as turnstiles are used in order to ensure that only people with a valid ticket can pass through the entrance.

The access control systems include up to 15 sets of photoelectric sensors for the monitoring operation. The sensors used are retro-reflective or through-beam with invisible infrared light, in order to avoid any damage caused by vandals.

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# Doors & Access controls

**Our product range**

<table>
<thead>
<tr>
<th>Photoelectric sensors</th>
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</tr>
</thead>
<tbody>
<tr>
<td>PA12</td>
<td>PB10</td>
<td>PB18</td>
<td>PE12</td>
</tr>
<tr>
<td>Dimensions: Ø12 x 42 mm PC and stainless steel</td>
<td>Dimensions: Ø10 x 42 mm</td>
<td>Dimensions: Ø18 x 42 mm</td>
<td>Dimensions: Ø12 x 29 mm</td>
</tr>
<tr>
<td>Power supply: 10 to 30 VDC</td>
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<td>Power supply: 10 to 30 VDC</td>
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</tr>
<tr>
<td>Output NPN or PNP, Normally Open or Normally Closed</td>
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</tr>
<tr>
<td>Emitter with Mute Input for testing the sensor</td>
<td>20 m sensing distance</td>
<td>Emitter with Mute Input for testing the sensor</td>
<td>15 m sensing distance</td>
</tr>
<tr>
<td>MAIN FEATURES</td>
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<tr>
<td>Light beam approved to Safety Category 2</td>
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<td>Light beam approved to ESPE 2, PSPE 2, PL C</td>
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</tr>
<tr>
<td>UL325, UL508, EN12445, EN12453, EN12978</td>
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<td>UL325, UL508, EN12445, EN12453, EN12978, EN13849-1</td>
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<tr>
<td>Coded sensors available for less crosstalk</td>
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</tr>
<tr>
<td>PD70</td>
<td>PD30</td>
<td>PC50</td>
<td>PM</td>
</tr>
<tr>
<td>Dimensions: 10 x 10.6 x 70 mm</td>
<td>Dimensions: 10.8 x 20 x 30 mm</td>
<td>Dimensions: 17 x 50 x 50 mm</td>
<td>Dimensions: 25 x 65 x 81 mm</td>
</tr>
<tr>
<td>Power supply: 10 to 30 VDC</td>
<td>Power supply: 10 to 30 VDC</td>
<td>Power supply: 10 to 30 VDC</td>
<td>Power supply: 24 VAC/DC</td>
</tr>
<tr>
<td>Output NPN or PNP, Normally Open or Normally Closed</td>
<td>Output NPN or PNP, Normally Open or Normally Closed</td>
<td>Output NPN or PNP, Normally Open or Normally Closed</td>
<td>Relay output SPST</td>
</tr>
<tr>
<td>Emitter with Mute Input for testing the sensor</td>
<td>Through beam and Retro-reflective sensors</td>
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<td>UL325, UL508, EN12445, EN12453, EN12978</td>
<td>Visible polarized light or Infrared versions</td>
</tr>
<tr>
<td>Main application pedestrian sliding doors</td>
<td>Visible polarized light or Infrared versions</td>
<td>Used for Entrance systems</td>
<td>Visible polarized light or Infrared versions</td>
</tr>
<tr>
<td>Photoelectric sensors</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

### Photoelectric sensors

<table>
<thead>
<tr>
<th>Product</th>
<th>Dimensions</th>
<th>Power Supply</th>
<th>Main Features</th>
</tr>
</thead>
</table>
| PD86 / PD86HNP / PD86xAP12 | 39 x 44 x 86 mm | 12 to 24 VAC/DC | - Dimensions: 39 x 44 x 86 mm  
- Power supply: 12 to 24 VAC/DC  
- Relay output SPST  
- Emitter with Mute Input for testing the sensor  
- Polared Retro-reflective sensors  
- ZAMAK5 (PD86HNP) or Polycarbonate housing cover  

**MAIN FEATURES**  
- Light beam approved to Safety Cat. 2  
- UL325, UL508, EN12445, EN12453, EN12978  
- Visible polarized light, 3 detection directions  
- Adjustable lenses +/- 4.5 degree horizontal and vertical (PD86xAP12)  
| PD98 | 37 x 56 x 98 mm | 12 to 24 VAC/DC | - Dimensions: 37 x 56 x 98 mm  
- Power supply: 12 to 24 VAC/DC  
- Relay output SPDT  
- Emitter with Mute Input for testing the sensor  
- 30 m Sensing Distance  

**MAIN FEATURES**  
- Light beam approved to Safety Category 2  
- UL325, UL508, EN12445, EN12453, EN12978  
- Visible polarized light or Infrared versions  
| MPF Series | 57 x 70 x 86 mm | 12 to 24 VAC/DC | - Dimensions: 57 x 70 x 86 mm  
- Power supply: 12 to 24 VAC/DC  
- Relay output SPDT  
- Emitter with Mute Input for testing the sensor  
- 15 m Sensing Distance  

**MAIN FEATURES**  
- Light beam approved to Safety Category 2  
- UL325, UL508, EN12445, EN12453, EN12978  
- Up to 3 multiplexed channels  
| S142 A,B or C..+ MOFT/R | 35 x 79 x 80 mm | 24 VAC/DC | - Sensor Ø12 x 20 mm  
- System 57 x 70 x 86 mm  
- Power supply: 12 to 24 VAC/DC  
- Relay output SPDT  
- Emitter with Mute Input for testing the sensor  
- 15 m Sensing Distance  

**MAIN FEATURES**  
- Sensor Ø10 x 42 mm  
- System 35 x 79 x 80 mm  
- Power supply: 24 VAC/DC, 115 VAC or 230 VAC  
- Relay output SPDT  
- Emitter with Mute Input for testing the sensor  
- Up to 50 m Sensing Distance  

### Wireless safety system

<table>
<thead>
<tr>
<th>Product</th>
<th>Dimensions</th>
<th>Power Supply</th>
<th>Main Features</th>
</tr>
</thead>
</table>
| PD112 | 25 x 45 x 112 mm | 10 to 30 VDC | - Dimensions: 25 x 45 x 112 mm  
- Power supply receiver: 10 to 30 VDC  
- NPN and PNP NO or NC output  
- Emitter with Mute Input for testing sensor function  
- 2.5 m sensing distance  

**MAIN FEATURES**  
- Light beam approved to Safety Category 2  
- UL325, UL508, EN12445, EN12453, EN12978  
- Visible polarized light, 3 detection directions  
- Adjustable lenses +/- 4.5 degree horizontal and vertical (PD86xAP12)  
| PD140 | 140 x 51 x 46 mm | 12 to 24 VAC/DC | - Dimensions: 140 x 51 x 46 mm  
- Power supply: 12 to 24 VAC/DC  
- Relay output: SPDT  
- Mute input for sensor testing  
- 60 m sensing distance  

**MAIN FEATURES**  
- Alignment help: Flashing LEDs, Voltage output and Laser Alignment tool  
- ESPE category 2, Performance level d  
- UL325, UL508, EN12445, EN12453, EN12978  
| PD180 | 49 x 51 x 180 mm | 12 to 24 VAC/DC, 115 VAC or 230 VAC | - Dimensions: 49 x 51 x 180 mm  
- Power supply receiver: 12 to 24 VAC/DC  
- Emitter Battery supply  
- Relay output SPDT  
- Emitter with Mute Input for testing sensor function  
- 30 m sensing distance  

**MAIN FEATURES**  
- Light beam approved to Safety Category 2  
- UL325, UL508, EN12445, EN12453, EN12978  
- Up to 3 multiplexed channels  
| WSM.. WSS.. PB11 | 75 x 125 x 35 mm | 12 to 24 VAC/DC | - Main: 75 x 125 x 35 mm  
- Sub: 45 x 214 x 22 mm  
- Main: 12 to 24 VAC/DC  
- Sub: Battery supply  
- SPST output for safety edge and low battery  
- Emitter with Mute Input for testing the sensor  
- 10 m wireless distance, 15 m for the gate version  

**MAIN FEATURES**  
- Light beam approved to Safety Category 2  
- UL325, UL508, EN12445, EN12453, EN12978, FCC, IC  
- Replacing wired safety solutions for doors and gates  

CARLO GAVAZZI Automation Components. Specifications are subject to change without notice. Illustrations are for example only.
## Doors & Access controls

### Our product range

<table>
<thead>
<tr>
<th>Loop detectors</th>
<th>Inductive proximity sensors</th>
<th>Inductive proximity sensors with IO-Link</th>
<th>Motion and presence sensors</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LDP1 / LDP2</strong></td>
<td><strong>ICB12 / ICB18 / ICB30</strong></td>
<td><strong>ICB12..IO/ICB18..IO/ICB30..IO</strong></td>
<td><strong>GUARDIAN1 / GUARDIAN2</strong></td>
</tr>
<tr>
<td>Dimensions: 81 x 35.5 x 76.2 mm, 11 pin circular plug-in</td>
<td>M12, M18 and M30 NPB housing in short or long barrel lengths</td>
<td>Nickel-plated brass M12, M18 or M30 cylindrical threaded barrel housings</td>
<td>Dimensions: 58 x 77 x 210 mm</td>
</tr>
<tr>
<td>Wide range power supply: 24 - 240 VAC / VDC</td>
<td>Sensing distance from 2 up to 22 mm</td>
<td>Sensing distance from 4 mm to 22 mm</td>
<td>Power supply: 12 to 24 VAC/DC</td>
</tr>
<tr>
<td>2 x SPDT outputs independently selectable in pulse or presence mode</td>
<td>Output functions: NO or/and NC, NPN or PNP</td>
<td>Output functions: programmable NO or NC, NPN, PNP or push-pull</td>
<td>2 x Relay output SPST 1 A @30 VAC/DC (motion or presence)</td>
</tr>
<tr>
<td>Single loop or dual loop</td>
<td>Two meter oil resistant PVC cable or M12 plug version</td>
<td>Two meter oil resistant PVC cable or M12 plug version</td>
<td>Easy modifying the motion zone</td>
</tr>
<tr>
<td>UL and CSA approved</td>
<td>CE, cULus, cCSAus approved</td>
<td>CE, cULus approved</td>
<td>1.8 to 3 m mounting height</td>
</tr>
</tbody>
</table>

**MAIN FEATURES**
- Automatic Sensitivity Boost (ASB)
- Automatic frequency channel tuning
- Multicolour LED for easy setup and intuitive diagnostics
- Selectable fail safe and fail secure mode

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

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

**MAIN FEATURES**
- Motion and presence sensor in one unit
- Guardian 2 can be adapted to curved sliding doors
- Vision based detection
- CE, UL325 and TÜV approved

### Magnetic sensors

**SPA1 Series**
- Type: rectangular plastic housing
- Power supply: 24 VDC
- Nominal operating point: 12 mm
- One low power NC contact as a signal contact
- One high power NC contact to drive hard loads

**MAIN FEATURES**
- PVC cable with connector for easy and fast installation
- Relay output
- Long life contacts

**DMB51**
- Dimensions: 81 x 17.5 x 67.2 mm DIN rail housing
- Delay on operate function (DA1), multifunction (DA2B):
  - Combined AC and DC power supply
  - Repeatability: ±0.2%
  - UL, CSA, RINA approved

**MAIN FEATURES**
- Delay on operate/release, interval (manual/automatic start);
  - Double interval, symmetrical recycler (ON or OFF first)
  - Timing range from 0.1s to 100h

### Timers

**PS42L**
- Pollution degree 3
- Operating temperature: -25°C to +70°C (-13°F to +158°F)
- 2 output relay contacts - Normally open and Normally closed
- Degree of protection IP65
- UL, CSA approved

**MAIN FEATURES**
- Precise operation and consistency
- Various head types available - flexible installation
- High resistance to vibrations (25g)

### Limit switches

**RVLF**
- Compact dimensions 72 x 141 x 139 mm
- VF control and sensorless vector control
- Built-in EMC filter
- Single-phase or three-phase supply
- CE, UL, ROHS approved

**MAIN FEATURES**
- Ease of use, minimal settings
- PID control & torque boost capability
- Onboard protection features; e.g. stall prevention, PTC input

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<table>
<thead>
<tr>
<th>Switching power supplies</th>
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</table>

#### SPD

- Output power from 5 W to 480 W
- Universal input range of 110-240 VAC, or up to 370 VDC
- Short circuit, overload and overvoltage protection
- PFC > 100 W
- CE, cULus, cURus, UL1310 Class 2 (up to 90W), ISA 12.12.1 Class 1 Div2, TÜV, CCC

#### SPDM

- Output power from 30 W to 240 W
- Universal input range of 110-240 VAC, or up to 370 VDC
- Short circuit, overload, overvoltage and over temperature protection
- CE, cULus and cURus (up to 120 W), UL1310 Class 2 (up to 72 W, for 72 W only for 24 VDC models)

#### SPM

- Output power from 7.5 W to 100 W
- Universal input range of 110-240 VAC, or up to 370 VDC
- Short circuit and overload protection
- Derating starts from +60°C
- CE, cULus, cURus, UL1310 Class 2 (up to 91.2 W), ISA 12.12.1 Class I Div2, TÜV

#### SPUC

- Up to 30 A UPS controller
- 12 V and 24 V versions
- Output for “Device OK”, “Battery OK” and “Battery Low”
- DIN rail battery accessory up to 7.2 AH
- CE, cULus, cURus, TÜV

#### SPUBAT

- Capacity from 1.2 Ah to 12 Ah
- 24 V AGM VRLA batteries
- Stainless steel construction
- Easy battery replacement
- No mounting orientation restriction

#### RMIA

- 2 or 4 poles
- 2CO (10 A) or 4CO (5 A) contacts
- DC Coil from 12 VDC to 110 VDC
- AC Coil from 12 VAC to 230 VAC
- IP40 Ingress protection

#### RSLM

- SPST or SPDT option
- Contact rating for 6 A, 250 VAC/30 VDC
- Coil voltage from 12 VDC to 60 VDC
- Built-in battery diagnosis
- VDE, CQC, cURus, CSA approved

### MAIN FEATURES

- **SPD**
  - DC OK signal
  - Parallel connection
  - Screw, spring or detachable terminal connectors

- **SPDM**
  - Save up to 20% panel space
  - High efficiency and wide operating temperature
  - Screw, spring terminal connectors

- **SPUC**
  - To be used in addition with 12 V or 24 V power supply
  - Replaceable 30 A fuse
  - Plug and play; no settings required

- **SPUBAT**
  - Screw terminals for fast connection
  - Built-in replacement fuse
  - DIN rail or panel mounting

- **RMIA**
  - High switching power
  - Long life span
  - Comes with LED and Test button

- **RSLM**
  - 5 mm ultra slim width
  - DIN rail mount (ZRLS socket) or PCB mount (ZRLP)
  - Surge voltage of up to 6 kV
## Doors & Access controls

### Our product range

<table>
<thead>
<tr>
<th>3-phase monitoring relays</th>
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<th>Current monitoring relays</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DPA52 / DPB52</strong></td>
<td><strong>DBP02 / PPB02</strong></td>
<td><strong>DPD</strong></td>
<td><strong>DIB02 / PIB02</strong></td>
</tr>
<tr>
<td>Dimensions: 81 x 17.5 x 67.2 mm</td>
<td>22.5 DIN (DBP02) or 35 mm Plug in (PPB02)</td>
<td>22.5 mm DIN rail mounting Enclosure</td>
<td>Dimensions: 22.5 mm for DIN (DIB) or 35.5 for Plug in (PIB)</td>
</tr>
<tr>
<td>DIN-rail housing</td>
<td>Phase sequence and loss relay</td>
<td>120 VAC to 480 VAC Delta &amp; Star mains</td>
<td>Overcurrent or undercurrent detection</td>
</tr>
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<td>Phase sequence and phase loss (DPA/DPB), Under/Over Voltage (DPB)</td>
<td>3 phase AC (own switching power supply)</td>
<td>Voltage and frequency monitoring</td>
<td>DC current measurement by means of external Shunt</td>
</tr>
<tr>
<td>3 phase AC (own switching power supply)</td>
<td>Power supply from 208 VLL -40% to 480 VLL +30%</td>
<td>2 SPDT 8 A relay outputs</td>
<td>Power supply: 115/230 VAC, 24/48 VAC, 24 VDC, 48 VDC</td>
</tr>
<tr>
<td>Power supply from 208 VLL -40% to 480 VLL +30%</td>
<td>cULus Listed and CCC approved</td>
<td>NFC programming</td>
<td>Adjustable time delay</td>
</tr>
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<td>cULus Listed and CCC approved</td>
<td>Switch mode power supply 2.5 VA</td>
<td>UL, CSA and CCC approved</td>
<td><strong>MAIN FEATURES</strong></td>
</tr>
</tbody>
</table>

### MAIN FEATURES

- Motors protection from reverse running and phase loss
- 17.5mm width, suitable for NORM panels
- Switch mode power supply 2.5 VA

---

<table>
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<tr>
<th><strong>DTA71 / DTA72</strong></th>
<th><strong>DEA71 / DEB71</strong></th>
<th><strong>CTG</strong></th>
<th><strong>DSB / DSF</strong></th>
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<td>6 sizes from 35 mm to 210 mm</td>
<td>Dimensions depending to modules according to DIN standard</td>
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<tr>
<td>Motor thermistor relay</td>
<td>2 SPDT 5 A relay outputs</td>
<td>Closed round core type</td>
<td>Suitable for all 1- and 3-phase utilities</td>
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<tr>
<td>PTC Open and PTC Short detection</td>
<td>LED leakage level indicator</td>
<td>Screw terminals connection</td>
<td>Available for MCOV 300 V, 385 V, 460 V and 550 V (DSF) or 275 V, 385 V and 440 V (DSB)</td>
</tr>
<tr>
<td>Universal power supply from 24 V to 240 VAC/DC</td>
<td>Power supply from 24 V to 240 VAC</td>
<td>1:1000 ratio</td>
<td>20 kA Iann, 40 kA Imax per pole</td>
</tr>
<tr>
<td>UL and CE approved</td>
<td>UL and CE (IEC EN 60947-2 Annex M compliant)</td>
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### MAIN FEATURES

- Multicolour LED with alarm discrimination
- Auto or manual, local or remote reset, test function (DTA72)
- Ready for reset function (DTA72)

---

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<tr>
<th><strong>Motor thermistor relays</strong></th>
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### MAIN FEATURES

- Fixed (DEA71) or adjustable (DEB71) trip current setting
- Remote Test / Reset push button input
- Warning indication and output

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### MAIN FEATURES

- Multi-colour LED with alarm discrimination
- Auto or manual, local or remote reset, test function (DTA72)
- Ready for reset function (DTA72)
OUR SALES NETWORK IN EUROPE

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

BELGIUM
Carlo Gavazzi NV/SA
 Mechelssteenweg 311,
B-1800 Vilvoorde
Tel: +32 2 257 41 20
Fax: +32 2 257 41 25
sales@carlogavazzi.be

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

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

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

ITALY
Carlo Gavazzi SpA
Via Milano 13,
I-20020 Lainate
Tel: +39 02 931 76 61
Fax: +39 02 931 763 01
info@gavazziacbu.it

NETHERLANDS
Carlo Gavazzi BV
Wijkermeerweg 23,
NL-1940 NT Beverwijk
Tel: +31 251 22 9345
Fax: +31 251 22 60 55
info@carlogavazzi.nl

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

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

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

SWEDEN
Carlo Gavazzi AB
V a Kyrkogatan 1,
S-652 24 Karlstad
Tel: +46 34 85 11 25
Fax: +46 34 85 11 77
info@carlogavazzi.se

SWITZERLAND
Carlo Gavazzi AG
Verkauf Schweiz/Vente Suisse
Sumpfstrasse 3,
CH-6312 Steinhausen
Tel: +41 41 747 45 35
Fax: +41 41 740 45 40
info@carlogavazzi.ch

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

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

MEXICO
Carlo Gavazzi Mexico S.A. de C.V.
Circuito Pueblicolores 22, Ciudad Satelitl
Nascaolpan de Jozar, Edo Mex. CP 53100
Mexico
T +55 55 5373 7042
F +55 55 5373 7042
mexico.sales@carlogavazzi.com

BRAZIL
Carlo Gavazzi Automação Ltda.
Francisco Matarazzo, 1752
Conj 2108 - Barra Funda - São Paulo/SP
Tel: +55 11 3055 0832
Fax: +55 11 3057 1753
info@carlogavazzi.com.br

OUR SALES NETWORK IN THE AMERICAS

OUR SALES NETWORK IN ASIA AND PACIFIC

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

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

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

HONG KONG
Carlo Gavazzi Automation
Hong Kong Ltd.
Unit 3 12/F Crown Industrial Bldg.,
106 How Ming St., Kwun Tong,
Kowloon, Hong Kong
Tel: +852 2344 3689
Fax: +852 2304 1228

OUR COMPETENCE CENTRES AND PRODUCTION SITES

DENMARK
Carlo Gavazzi Industri A/S
Hadsten

MALTA
Carlo Gavazzi Ltd
Zejtun

ITALY
Carlo Gavazzi Controls SpA
Belluno

LITHUANIA
Uab Carlo Gavazzi Industri Kaunas
Kaunas

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