CARLO GAVAZZI
Automation Components

CARLO GAVAZZI

SCAN ME

MFP
AUTOMATION
ENGINEERING

Product Overview

CARLO GAVAZZI
Automation Components

Sensors

Switches

Controls

Carlo Gavazzi is a multinational electronics group active in the design, manufacture and marketing of electronic and electrical components targeted for the global markets of industrial automation, building automation and energy.

Founded over 85 years ago, our experience and knowledge are unparalleled. Our core competence in automation spans across four product ranges: Sensors, Switches, Controls and Fieldbuses

Our wide array of products includes solid state relays, sensors, monitoring relays, energy metering and management products, contactors, motor controllers, fieldbus systems and a growing range of renewable energy products and solutions.

We have our headquarters in Europe and numerous offices spanning the globe. Our R&D competence centers and manufacturing facilities are located in Denmark, Italy, Lithuania, Malta and China. With 22 wholly-owned sales companies and exclusive distributors in 60 other countries, from the Pacific Rim in the East to North America in the West, you are assured that product support, service and inventory are only a phone call or email away.

Carlo Gavazzi products have earned the independent approval of the relevant bodies which govern our own industry and the many industries we serve. They are developed and manufactured in full compliance with the most important international standard regulations.

Carlo Gavazzi manufacturing facilities operate with the requirements of ISO14001:2004 Environmental Management System standard. Focus is on the reduction of environmental damage arising from our production processes in particular air pollution, chemical waste and rejects.

Our Strategic Markets and Industries

Carlo Gavazzi products are the result of years of extensive research and development. Our Engineering, Marketing and Sales Departments assure you that all of our products are designed with key integrated features to meet or exceed the demanding application requirements and provide the necessary benefits. Below are several of the markets and industries where Carlo Gavazzi has a presence worldwide. We are members of many of their trade organizations, and participate in their trade shows and write technical papers or white papers for their trade journals.

Food and Beverage

Plastics
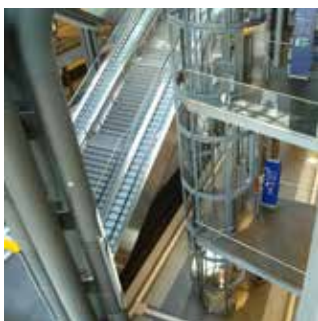
Packaging

Agriculture

Material Handling

Doors and Access

Parking Guidance

HVAC

Elevators and Escalators

Smart Building

Conventional Energy

Renewable Energy

Mining

Water and Waste Water

Mobile Equipment

Distribution

CARLO GAVAZZI Automation Components. Specifications are subject to change without notice. Visit GavazziOnline.com for more details.

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Inductive Proximity Sensors

Carlo Gavazzi offers a comprehensive range of inductive sensors for detecting the presence of metal. These sensors are used extensively in packaging and plastics machinery, on assembly lines and conveyor systems, and are available with a wide variety of styles and features.

Carlo Gavazzi cylindrical inductive sensors are available in a wide variety of diameters and lengths, and configurations. Standard, extended and extra extended sensing ranges are available, providing up to 40mm sensing range. For particularly tough applications, Carlo Gavazzi offers IP69K-rated sensors for harsh wash-down applications, high temperature sensors, and full metal housed sensors. Flat-pack, fork-shaped and micro/limit switch housings are also available for specialty applications.

For more detailed information, visit: www.Gavazzi*Online*.com/Inductive

Ø4,M5 IBS, ICS	M8 ICS, EI	M12 ICB, EI & IA	M18 ICB, EI & IA	M30 ICB, EI & IA

Miniature inductive proximity sensors with sensing ranges up to 1.3mm. 3 wire DC. M5 threaded, 4mm and 6.5mm smooth barrel. Stainless steel, IP67 housing. Flush or non-flush mounting. 6khz speed. IO-Link versions of these sensors are shown on page 11.

Inductive proximity sensors in M8 stainless steel IP67 housings. Standard and extended sensing ranges up to 4mm. NAMUR, 2 wire DC and 3 wire DC options. Flush or non-flush mounting. IO-Link versions of these sensors are shown on page 11.

Inductive proximity sensors in M12 stainless steel, nickel plated brass or plastic IP67 housings. Standard and extended ranges up to 8mm. NAMUR, 2 wire AC, 2 wire DC and 3 wire DC options. Flush, quasi-flush or non-flush mounting. Connection choice of 2m cable or M12 plug. IO-Link versions of these sensors are shown on page 11.
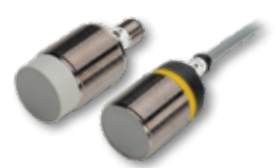
Inductive proximity sensors in M18 stainless steel, nickel plated brass or plastic IP67 housings. Standard and extended ranges up to 14mm. NAMUR, 2 wire AC, 2 wire DC and 3 wire DC options. Flush, quasi-flush or non-flush mounting. IO-Link versions of these sensors are shown on page 11.

Inductive proximity sensors in M30 stainless steel or nickel plated brass IP67 housings. Standard and extended sensing ranges up to 22mm. NAMUR, 2 wire AC, 2 wire DC and 3 wire DC options. Flush, quasi-flush or non-flush mounting. IO-Link versions of these sensors are shown on page 11.

Extra Extended Sensing Distance	Harsh Environment ICS	High Temperature IA..HT-K	Complementary Output ICB & ICS	Other Sensors and Amplifiers

ICB Series extra extended sensing distance in M12, M18 and M30 nickel plated brass IP67 housings. Extra extended range up to 10mm (M12), 20mm (M18) and 40mm (M30). 3 wire DC output. Quasi-flush or non-flush mounting.

ICS Series harsh environment sensors in M12, M18 and M30 stainless steel IP69K ECOLAB certified housings rated from -40 to 80°C (-40 to 176°F). Sensing range up to 22mm. 3 wire DC. Flush or non-flush mounting. Connection via M12 plug and **CONB** Series IP69K cord set.

IA..HT-K Series high temperature sensors in M5, M8, M12, M18 and M30 stainless steel or nickel plated brass IP67 housings. Rated from -40 to 120°C (-40 to 248°F). Sensing range up to 15mm. 3 wire DC. Flush or non-flush mounting. Connection choice of 2m cable or M12 plug.

ICB and **ICS** Series with complementary output function provide high flexibility. Offered in M8 (stainless steel), M12, M18 and M30 (nickel plated brass) IP67 housings. Standard and extended sensing distances up to 22mm.

Carlo Gavazzi also offers non-cylindrical sensors and amplifier relays: **DU** Series fork shaped with various slot sizes; **IG12** Series in micro-limit switch housing; **EI55** Series flat pack; **IC40** Series with rotatable head in general purpose limit switch housing; and **LDP** Series loop detectors amplifiers.

Capacitive Proximity Sensors

Carlo Gavazzi capacitive sensors will detect most materials, whether they are conductive or non-conductive. The patented and proven Tripleshield™ design has become the standard all other capacitive proximity sensors are measured against. Now in its fourth generation, Tripleshield™ provides outstanding electromagnetic immunity and protection against electrostatic discharge, surges and electrical noise from inverters, mobile phones, and contactors.

Carlo Gavazzi cylindrical capacitive sensors are available in a wide variety of physical sizes and configurations, providing up to 30mm sensing range. Various versions are available with dirt alarm or over-temperature alarm output, relay output, IP69K ECOLAB approvals, chemical resistant housings, and high temperature applications.

Also offered is a full line of flat-pack style sensors, ideal for level sensing in pipes and tubes, plastics machinery, whirlpools, and pellet stoves. Presence detection of water based liquids, ignoring the buildup of dirt/moisture/foam, is possible using the CD34's foreground suppression technology.

For more detailed information, visit: www.GavazziOnline.com/Capacitive

4th Gen. Tripleshield™ CA18/30..CA	Tripleshield™ CA18/30 & EC30..T	Teach-In Tripleshield™ CA12/18/30..BP	Chemical Resistant CA..LF/LN	ATEX Zone Ø18 & Ø32

Capacitive proximity sensors with improved 4th generation Tripleshield™ technology (enhanced EMI, dust and humidity compensation). IP69K ECOLAB approved housings with up to 120°C (248°F) on the sensing face. Sensing ranges up to 12mm (M18) & 30mm (M30). 4 wire DC, NPN or PNP with NO & NC output. With 2m cable or M12 plug. Optional dirt or over-temperature alarm

Capacitive proximity sensors with Tripleshield™ technology. 20-250VAC & 20-250VAC/DC (**M30 CA30..CLN.. CP**) only) versions. IP67 PBT and stainless steel housings are offered. Sensing ranges of up to 15mm (M18) or 25mm (M30), NO & NC output. Connection via 2m cable or M12 plug. 4 wire DC versions are also available in stainless steel housings (**EC30...N.ASL**)

Capacitive proximity sensors with Tripleshield™ technology and Teach-in button set-up. Sensing ranges up to 8mm (M12), 12mm (M18) and 30mm (M30). 4 wire DC, NPN or PNP with NO and NC output. Connection via 2m cable or M12 plug. Humidity compensation, NPN/PNP auto-detection, remote set-up, alarm output. Optional with dirt and moisture compensation.

Capacitive proximity sensors with Tripleshield™ technology. Adjustable sensing distance of 3-8mm (flush) or 3-12mm (non-flush). Black M18 polypropylene, PVC or Teflon housing with 2m cable. Ideal for use in level applications in chemical, semiconductor and food & beverage industries.

CB18/32 are ATEX-approved Capacitive AC or DC proximity sensors (Tripleshield™). Sensing distances up to 12mm (Ø18) and up to 20mm (Ø32), non-flush mounted. NO or NC with ON or OFF delay output (AC models), NPN or PNP with NO or NC output (DC models). Ideal for detecting grain or solids in tanks, silos or containers in ATEX Zones 20 or 22.

Relay Output CA..12M & VC	Liquid Detector CD34	Flat Pack EC55 & VC55	Flat Pack CD46	Flat Pack CD50

Capacitive level sensor for solid, fluid or granulated substances, in M30 PBTP threaded housing or smooth Ø32 thermoplastic housing (for PG36 screw gland). 21-265VAC/DC supply and 2A SPDT output. Adjustable sensing distance up to 12mm. Optional adjustable (ON or OFF) time delay.

Compact (34x16x8mm) design is ideally suited for detection of water based liquids. Foreground suppression ignores dirt, moisture or foam build up from certain liquids. Choice of NPN or PNP, NO or NC output. Available in 2m cable or pigtail with M8 connector. IP69K ECOLAB approved housings.

Capacitive DC-proximity sensors. **EC55** features Tripleshield™ technology. Sensing distance 4-5mm flush or non-flush. NPN or PNP, NO or NC output. 2m cable or M12 connector. **VC55** is a basic sensor with sensing distance of 2-10mm. Choice of NPN or PNP, NO or NC output, with 2m cable. Ideal for level and plastic machinery applications.

Capacitive DC-proximity sensors with Tripleshield™ technology. Teachable switch point 1-10mm, flush or non-flush. NPN or PNP, NO or NC output. A perfect solution for pellet stove applications or any other level sensing application where this sensor can be strapped around a plastic pipe, tube or feeding chamber.

Capacitive level detector. 3-wire DC sensor with open collector NPN or PNP transistor output. Fixed sensing distance and detection through a non-metallic wall of up to 25mm thickness. Ideal for level detection in whirlpools and tubs.

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Photoelectric Sensors

Carlo Gavazzi offers a wide range of photoelectric sensors which are used extensively in packaging machinery, automatic door systems, material handling and many other industrial applications. Available in diffuse reflective (with or without background suppression), retro-reflective (polarized and non-polarized) and through beam styles. Carlo Gavazzi photoelectric sensors are available in many physical configurations to accommodate a vast array of mounting and sensing requirements. Versions with IP69K and ECOLAB approvals are also available for harsh environments.

Carlo Gavazzi also offers a variety of powerful photoelectric sensor amplifiers, ideal for extremely wet, foggy, or dusty environments, such as car washes and wood processing applications.

For more detailed information, visit: www.Gavazzi*Online*.com/Photoelectric

Miniature, Basic	Miniature, Advanced	Miniature SS	Point Spot	Versatile
PD30..SA/IS	**PD30..RT/MU/DU**	**PD30ET**	**PD30..PS**	**PH18..SA**

Compact size of full range sensors in a reinforced plastic housing. An ideal solution when high accuracy detection, as well as small size is required. Top or back potentiometer adjustment. Available in diffuse (1m), retroreflective (6m), through-beam (15m), and polarized (6m). Background suppression (200mm). Transparent object detection versions available.

Compact size of full range sensors in a reinforced plastic housing. An ideal solution when high accuracy detection, as well as small size is required. Top or back potentiometer adjustment. Available in diffuse (1m), retroreflective (6m), through-beam (15m), and polarized (6m). Background suppression (200mm). Transparent object detection versions available.

Stainless steel sensors with IP69K ratings, NEMA enclosure types 1, 2, 4, 4x, 5, 6, 6P. Rugged design fit for harsh environments and against high-pressure washing, abrasive disinfectants and cleaning agents. Available in background suppression (200mm), diffuse (1m), wide angle diffuse (200mm), retroreflective (6m), polarized (6m) and through beam (15m).

High sensing performance using PointSpot light source, which eliminates any halo effect. Background suppression (250mm) and polarized retro-reflective (5m). 4 wire DC. Potentiometer adjustment. NPN or PNP, with NO and NC output function. IP67 housing.

Small sensors in versatile IP69K housings provide for side mounting with screws, or front mounting with the 18mm threaded barrel. Potentiometer adjustment, available in diffuse (1m), background suppression (200mm), polarized (5m), retroreflective (6.5m), through beam (20m) sensing functions. 2m PVC cable or M12 plug.

M18	M18 – AC Type	Compact	Remote Amplifier System	Remote Amplifier System
PA18CA/R	**PA18CL/AL**	**PC50**	**S142 & MOF**	**MPF**

M18 family of cost-effective general purpose DC 4-wire sensors in IP69K ECOLAB approved plastic housings (axial and radial type). Background suppression (200mm), diffuse (1m), diffuse wide angle (0.4m), polarized (5m), retro reflective (6.5m), through-beam (20m). 2m PVC cable or M12 plug.

Supply voltage 20 to 250VAC. Nickel plated brass or thermoplastic housings, IP67. Diffuse (400mm), polarized (2m), retro-reflective (3m) with immunity to reflecting surfaces. 2-wire, NO or NC SCR output type. 2m PVC cable or M12 plug.

Compact size of full range AC/DC or DC-sensors in a reinforced plastic housing. Diffuse reflective (1m), background suppression (500mm), retro reflective (10m), polarized 6m) and through beam (20m).
The long sensing range and sensitivity adjustment make for a very flexible sensor.

MOF are powerful robust through-beam sensors for use with the **S142** and **S1430** amplifiers for optimized space / performance ratios. Sensing distances up to 50m and three different detection angles. Ideal for harsh environments containing water, dust etc.

Remote amplified system consists of sensors in 3 different housing choices and a separate amplifier in choice of 1, 2 or 3 channels. Meets all global door standards. Has test input and relay output.

Photoelectric Sensors (continued)

Carlo Gavazzi photoelectric sensors are ideally suited for many diverse industries and applications, including the largest selection of UL 325 approved sensors for the automatic door and gate industry.

Fork sensors are available in various slot widths.

Clear object detection and color recognition sensors and an extensive range of fiber-optic sensors are also available. The fiber-optic sensors are ideal forr applications where a conventional sensor cannot be used due to space limitations, high temperature, or atmospheric restrictions.

Doors and Gates PD98	Door Sensors PD86	Doors and Gates PD140	Battery Powered PD180	Slimline PD70

Through beam AC/DC sensors (up to 30m) in a durable polycarbonate housing. Designed for the domestic and industrial door markets. The sensing functions can be verified through a sensor mute input. High neighbor immunity.

Versatile polarized retro-reflective sensor for automatic door systems. IP66 plastic or metal alloy housing. Detects in one of three directions by adjusting the sensing angle within the housing. 24VAC/DC supply, Relay output, with up to 12m range

UL325 sensors for door or gate widths up to 60m. 24VAC/DC supply with a SPDT relay output. Adj. lenses in the horizontal (200°) and vertical planes (30°). Rugged vandal resistant, aluminum and polycarbonate housing. Optional **ADP Series** green laser alignment tool.

Through beam AC/DC sensors in polycarbonate housing, designed for the door and automatic gate markets. Sensing function scan be verified through a sensor mute input. Lens adjustment 200° horizontal and ±30° vertical.

Specially designed for doors and entrance control. Slim housing design. Emitter with test input for evaluation of the sensor function. Available in 10-30VDC version. Sensing range up to 12m. Modulated, infrared light.

Rectangular PMD/P/RS/T	Through Beam PE12, PB10 & PB18	Background Suppression PD112	Fork Sensor PF74 & PF80	Fiber Optic FA1, FUR & FUT

Full size range of AC/DC or DC-sensors in a reinforced plastic housing. Diffuse (0.8m), retro reflective (10m), polarized retro reflective (12m) and through beam (20m). Mute input to verify sensing function. Ideal for industrial and door applications.

Through beam DC-sensors specially designed for door and entrance control with sensing distance up to 15 m. The sensing functions can be validated through a sensor mute input. NPN or PNP, NO or NC outputs.

Long range 2.5m background suppression DC sensor in a durable plastic housing. Outstanding black object detection of 1.8m. Based on triangulation detection principle - detect any object, while ignoring background disturbances from steady or moving objects.

Fork sensors with various slot widths. Narrow 3mm slot width (**PF80**) is ideal for label detection, and wide 30mm slot width (**PF74**) is ideal for lift/elevator applications. 3 or 4 wire DC sensors in IP65 housings.

Compact **FA1** fiber optic amplifier, with easy and flexible setup. Includes user selectable sensitivity, response time, timer settings, and two 4-digit displays. A robust and complete range of fiber optic cables, (reflective **FUR** and through beam **FUT**), support a wide variety of applications.

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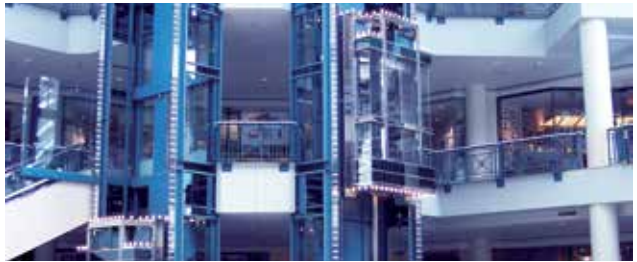
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Magnetic Sensors

Carlo Gavazzi offers a comprehensive range of magnetic sensors for use in proximity sensing applications.

A wide variety of styles are available, including rectangular, cylindrical and slotted. In addition, special coded magnets and sensors are available for use in safety applications.

Magnetic sensors are frequently used in elevators and lifts, gate control, level detection, and access control.

In elevator (lift) installations, normally open sensors are used for re-alignment of the lift car with the floor, and the bistable version is used to recognize the top and the bottom floors. Carlo Gavazzi's color coded magnetic sensors help installers to manage sensors, reducing the possibility of mistakes and time loss.

For more detailed information, visit: www.GavazziOnline.com/Magnetic

Ø 6 FMMP	M8 FMM	M10 FMA & FSA	M12 FMC, FMP & FS	Ø 13.5 FS

Miniature cylindrical magnetic sensor. Plastic housing material and 8mm or more operating distance. With NO output function. Twin lead cable output connection.

M8 cylindrical proximity magnetic sensors in stainless steel housing. PVC cable with NO, and change over output function. Operating distance up to 27mm.

M10 cylindrical proximity magnetic sensors in nickel plated brass housing. PVC cable with NO, and NC output function. Operating distance up to 23mm.

Cylindrical M12 magnetic sensors, color-coded plastic housing. Multiple output options: normally open, normally closed, change over, bistable. IP67 protection degree. Ideal for elevator applications.

Cylindrical proximity magnetic sensor in Ø 13.5 plastic housing. PVC cable with NO, NC, and change over output function. Operating distance up to 12mm.

M16 FSB & FSM	Flat type MC, MM & MS	Rectangular SP	Float Level ILM/S & FSH/V	Safety Switches MC36

M16 cylindrical proximity magnetic sensors in brass housing. PVC or silicon cable. Change over output function. Operating distance up to 8mm depending on the magnet. High temperature sensor.
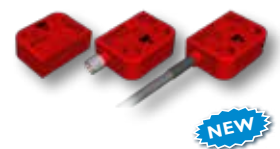
Standard proximity magnetic sensor series in plastic rectangular housing. Different dimensions are available, also miniature sensors. The sensor switching is side type with different operating distances.

Rectangular plastic proximity magnetic sensor. Different dimensions are available, also miniature sensors. The sensor switching is side type with different operating distances. Cable or faston connection.

Float level switches utilize a magnet embedded in moving float to open or close the switch. Options include both vertical and horizontal mounted switches, in multiple sizes, and choice of stainless steel or plastic housing materials.

Safety magnetic sensors in IP67 PBT housing (36 x 26 x 13mm) rated from -25 to 80°C (-13 to 176°F). Offered with left or right exit, cabled or M8 connector, with or without LED indicator. Equipped with two outputs and in combination with the **MC36CM** actuator have a safe switch on distance of 5mm and a safe switch-off distance of 15mm.

NEW

Optical & Conductive Level Sensors

Carlo Gavazzi offers a variety of level sensing and control technologies and products to meet the needs of most level control applications.

Conductive level control uses the electrical conductivity of the liquid to detect and control the level of liquids, and is well suited for most level control applications. Conductive level control is found in diverse areas, including agricultural, chemical, food and beverage, water distribution and water treatment industries. Carlo Gavazzi conductive level control products include a variety of probes and controllers, for filling and emptying applications ranging from a simple single point to complex four-point control and cascading up to seven level controllers.

Optical level sensors are popular in food and beverage and chemical industries. They are also popular in applications where conductive level technology cannot be used, such as in acids, bases, solvents, or potentially explosive environments.

For more detailed information, visit: www.Gavazzi*Online*.com/Level

Optical - Plastic **VP**	Optical - Metal **VPA**	Conductive Probe **VN/VT & VP**	Modular Probe **CLH**	Hanging Probe **A94 & VH**

Optical level sensors with built-in amplifier and modulated or unmodulated, infrared light. Polysulfone housing resistant to most acids and bases or polyamide 12 housing resistant to various solvents. ATEX version available.

High end optical level sensors with modulated infrared light with built-in amplifier. Stainless steel or nickel-plated brass housings, with glass or polysulfone tip resistant to most acids and bases.

Level sensing probes to control filling and emptying of conductive liquids. Use with CLD Controllers. Includes up to four insulated or non-insulated electrodes 1 meter long, cut to length to suit the application. Housings available in nylon (**VN**), PVC (**VPC**), poly-propylene (**VPP**), stainless steel (**VS**), and Teflon (**VT**).

Modular level sensing probes to control filling and emptying of conductive liquids. Use with **CLD controllers.** Up to five insulated or non-insulated electrodes can be used, with virtually any length required by the user application. Kynar (PVDF) and polyolefine (FR) electrode insulation available.

Conductive level sensing probes for liquid level detection. Hanging probe for single level point detection in i.e. swimming pools. Neoprene cable connections. The **A94** has two probes in one part, separated by an insulating barrier constructed of the polyester housing material. Detection functions determined by the amplifier used.

1 Level Controller **CLD1**	2 Level Controller **CLD2 & CLP2**	4 Level Controller **CLD4 & CLP4**	Cascading Controller **CLP2**

Single point level controller (with adjustable ON or OFF time delay) for liquids with sensitivity range from 5KΩ to 150KΩ. 17.5mm wide housing mounts easily on DIN rail. For filling or emptying applications. Supply voltage of 24VAC/DC, with one 8A output and diagnostic LEDs.

Dual-point level controller for conductive liquids, which can control up to two levels of filling or emptying. Adjustment sensitivity from 250Ω to 500KΩ. DIN rail mount (**CLD2**) or 11-pin plug-in (**CLP2**). Supply voltage of 24VAC/DC, 115VAC or 230VAC. **CLD2EBU** is 240VAC/DC. Up to two 8A outputs and diagnostic LEDs.

Multi-point level controller for conductive liquids, which can control up to four levels of filling or emptying. Adjustment sensitivity from 250Ω to 500KΩ. DIN rail mount (**CLD4**) or 11-pin plug-in (**CLP4**). Supply voltage of 24VAC/DC, 115VAC or 230VAC. Two 8A outputs and diagnostic LEDs.

Cascade up to seven amplifiers for filling or emptying of up to two level points. Adjustment sensitivity from 250Ω to 500KΩ. Supply voltage of 24VAC/DC, 115VAC or 230VAC. 8A SPDT output and diagnostic LEDs. Easy installation into an 11 pin circular socket.

CARLO GAVAZZI Automation Components. Specifications are subject to change without notice. Visit Gavazzi*Online*.com for more details.

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Ultrasonic, Motion, Presence & Wind Sensors

Carlo Gavazzi's ultrasonic sensors provide contactless distance measurement and object detection in tough applications. Because the technology is based on the reflection of sound, they are an ideal solution for detecting almost any type or color of material, even transparent objects. They provide superior performance, even where dust, steam, fumes and temperature variations are present. Both on/off switching and analog output versions are available for sensing distances up to 18 feet.

Carlo Gavazzi also carries a full line of motion and presence sensors, utilizing digital video and wireless technologies. These products are ideal for controlling all types of commercial and industrial automatic doors (e.g., sliding, swinging, folding, revolving, high-speed, overhead).

Outdoor anemometers and wind vanes, are ideal solutions for use with wind turbines, cranes, large doors, weather stations and greenhouses.

For more detailed information, visit: www.GavazziOnline.com/Ultrasonic

M12 **UA12**	Short-bodied M18 **UA18**	M18 **UA18**	M30 **UA30**	M30 Extended **UA30**
Multi-function M12 diffuse ultrasonic sensor in IP65 stainless steel housing. Sensing distance up to 200mm. One PNP or NPN switching output and setup of NO or NC via a remote teach function. M12 plug connection.	Short bodied multi-function multi-function M18 diffuse ultrasonic sensor in IP67 PBT plastic or stainless steel housing. Sensing distance up to 2.2m. Two transistor outputs, or one analog and transistor output. Standard switching, adjustable hysteresis or window modes via a simple pushbutton set-up. 2m cable or M12 plug connection.	Multi-function M18 diffuse ultrasonic sensor in IP67 PBT plastic or stainless steel housing. Sensing distance up to 2.2m. Two transistor outputs, or one analog and transistor output. Standard switching, adjustable hysteresis or window modes via a simple pushbutton set-up. 2m cable or M12 plug connection.	Multi-function M30 diffuse ultrasonic sensor in IP67 PBT plastic or stainless steel housing. Sensing distance up to 3.5m. Two transistor outputs, or one analog and transistor output. Standard switching, adjustable hysteresis or window modes via a simple pushbutton set-up. 2m cable or M12 plug connection.	Multi-function M30 diffuse ultrasonic sensor in IP67 PBT plastic housing, with a Ø40 head that protrudes 20mm. Sensing distance up to 6m. Two transistor outputs, or one analog and transistor output. Standard switching, adjustable hysteresis or window modes via a simple pushbutton set-up. 2m cable or M12 plug connection.

Motion & Presence **Guardian**	Wireless Safety **WSM**	Anemometer **DWS-V**	Wind Vane **DWS-D**
Overhead sensor for sliding doors. Motion and presence detector in one. Equipped with digital video camera technology. Easy and quick to set up. Easily adjustable large motion zone. Advanced self control system. Bi- and Uni-directional	Wireless safety system for use with safety edges on industrial doors eliminates cables between the controller and the door. Main unit can control up to eight safety edges. Opening heights of up to 20m can be monitored. Works with photoelectric sensors, safety edge devices, and door-in-door sensors.	Cup anemometer with opto-electronic detection for measuring air speed. Built-in heater and dust sealing. Inputs and outputs protected against reverse polarity and transients.	Relative wind vane for measurement of the relative wind direction. Optoelectronic detection. Built-in heater and dust sealing. Inputs and outputs protected against reverse polarity and transients.

IO-Link Sensors & Accessories

With the advent of Industry 4.0, industrial automation is undergoing a complete revolution as more and more information and functionality is now available from the field devices. This is possible thanks to IO-Link, which has been recognized as the official standard interface for sensors and actuators.

CARLO GAVAZZI's inductive and capacitive sensors feature integrated IO-Link Version 1.1 communications, which offers great functionality and data, never available before. Once connected to an IO-Link master, or our SCTL55 IO-Link Smart Configurator, sensors can be programmed according to the application requirements, enabling new functionalities and allowing process data exchange. Some functionality includes logic gates, time delays, sensing distance or hysteresis adjustment, RPM counter, rotational speed monitoring, temperature monitoring, 3 switching modes, diagnostics for predictive mainenance (operation hours, quality of run, operating cycles, temp monitoring) and much more. The new capacitive sensors with IO-Link communications can be configured to more than a half million combinations!

In addition, IO-Link sensors can operate in a non-IO-Link system and behave just as a standard sensor, with the difference that they are configured as the application demands. In this way, non-IO-Link sensors can be easily replaced, since they can use the current standard non-shielded cables and architecture in place.

For more detailed information, visit: www.GavazziOnline.com/IOLink

Ø4 & M5	M8	M12	M18	M30
IBS04 / ICS05..IO	**ICS08..IO**	**ICB12..IO**	**ICB18..IO**	**ICB30..IO**

The Ø4mm, M5, M8, M12, M18 and M30 Inductive proximity sensors with IO-Link are customizable and easily programmed via IO-Link communications: Output PNP/NPN/Push-pull, NO, NC and offer functionalities such as time delay divider, RPM counter, rotational speed monitoring, diagnostics. The Ø4mm, M5 and M8 type are offered with the 2m PVC cable or an M8 plug, whereas the M12, M18 and M30 types are offered with a 2m PVC cable or M12 plug.

Miniature inductive sensors in stainless steel housings. Smooth Ø4mm (**IBS**) or threaded M5 (**ICS**) barrels are IP67 and -25 to 70°C / -13 to 158°F rated. Flush mount sensing up to 1.3mm, with detection speeds up to 6Khz.

M8 Inductive proximity sensors in robust stainless steel housings, rated from -25 to 80°C / -13 to 176°F. Available in short and long barrels, flush (2mm) and non-flush (4mm). Rated

M12 Inductive proximity sensors in IP67 nickel plated brass housings rated from -25 to 70°C / -13 to 158°F. They are available in short and long barrels, with flush (4mm) and non-flush (8mm) sensing.

M18 Inductive proximity sensors in IP67 nickel plated brass housings rated from -25 to 70°C / -13 to 158°F. They are available in short and long barrels,, flush (8mm) and non-flush (14mm).

M30 Inductive proximity sensors in IP67 nickel plated brass housings rated from -25 to 70°C / -13 to 158°F. They are available in short and long barrels, flush (15mm) and non-flush (22mm).

M18	M30	Smart Configurator	IO Link Master	IO Link Master
CA18..IO	**CA30..IO**	**SCTL55**	**YL212C..IO**	**YN115C..IO**

M18 and M30 Capacitive sensors with IO-Link are customizable and easily programmed via IO-Link: Selectable output type (PNP/NPN/Push-pull, NO/NC), time delay, logic gates, output inverter, dust alarms, external teach and diagnostics. Sensors offer two outputs (one output can be programmed to be an input). 2m PVC cable or M12 plug. IP69K, ECOLAB approved and operate from -30 to 85°C / -22 to 185°F (face can handle 120°C / 248°F)

M18 IO-Link capacitive sensors with sensing distances for flush (8mm) or non-flush (12mm).

M30 IO-Link capacitive sensors with sensing sensing distances for flush (16mm) or non-flush (25mm).

Easily program IO-Link sensors in the machine, development lab, or shop without any additional equipment or software. 5.5" (140mm) HD touch screen, internal memory and micro SD port to save sensors' parameters and high capacity, rechargeable Li-ion batteries. Wi-Fi capabilities to access IODD files, applications or updates.

Rugged IP67 machine mount design, with PROFINET IO or EtherNet/IP™, both also support OPC UA and Modbus TCP protocols. Provides IO-Link devices access to multiple controllers at the same time. Two Fast Ethernet ports and eight IO-Link ports to connect sensors or actuators. Compatible with IO-Link V1.0 & V1.1.

IP20 DIN rail mount housing, with PROFINET IO or EtherNet/IP™, both also support OPC UA and Modbus TCP protocols. Provides IO-Link devices access to multiple controllers at the same time. They have two Fast Ethernet ports and eight IO-Link ports to connect sensors or actuators. Compatible with IO-Link V1.0 and V1.1.

CARLO GAVAZZI Automation Components. Specifications are subject to change without notice. Visit Gavazzi*Online*.com for more details.

Sensors 11

Sensor Accessories

Carlo Gavazzi offers a variety of high quality accessories to support our wide range of sensors. PVC and PUR cordsets are available in various lengths and configurations, with IP67, IP69K, and ECOLAB ratings. Sensor testers provide a perfect installation and troubleshooting tool. A wide variety of reflectors for retro-reflective sensors, and mounting brackets of all shapes and sizes are available.

For more detailed information, visit: www.GavazziOnline.com/Cordsets

M12 Cordsets	M12, IP69K	AC Cordsets	M8 Cordsets	M8, IP69K
CONB1	**CONB1..W**	**CONM6**	**CONB5/CONBP5**	**CONB5..W**

IP67 PVC or PUR cordsets, available with straight or right angle M12 connector. 3, 4 or 5 pin/wire connection for DC sensors. Cable lengths in 2m, 5m, 10m or 15m. PUR type provide better flexibility and resistance to chemicals, oils and other lubricants. Some types available with LEDs.

IP69K cordsets offer ECOLAB and UL certification. Resistant to chemicals and cleaning agents. These cordsets are ideal for the food and beverage industry. For connection of DC sensors up to 90°C (194°F). Available with straight or right angle M12 connector, 4 pin/wire, and 2m or 5m cable lengths.

IP67 PVC cordsets, available with straight or right angle M12 connector. Available with 3 pin/wire connection for AC sensors. Available in 2m or 5m cable lengths.

IP67 PVC or PUR cordsets, offered with straight or right angle M8 connector. Available with 3 or 4 pin/wire connection for DC sensors. Available in 2m, 5m, 10m or 15m cable lengths. PUR type offer better flexibility and resistance to abrasion from chemicals, oils and other lubricants. LED types offered for PNP sensors. Push-on connector (**CONBP**) also offered.

IP69K cordsets with ECOLAB and UL certification. Resistant to chemicals and cleaning agents, making them ideal for the food and beverage industry. For connection of DC sensors up to 90°C (194°F). Available with straight or right angle M12 connector, 4 pin/wire, and 2m or 5m cable lengths.

M12 IP67 Terminals	Sensor Tester	Reflectors	Mounting Brackets	Universal Bracket
CONM14NFA-A/S	**ST-03**	**ER**	**AMB**	**AMB4-30**

IP67 terminal for hardwiring, available as a straight or right angle M12 connector. Available with 4 pin/terminal connections for DC sensors.

Compact sensor tester powered by two standard 9VDC batteries (included). For all 2, 3 or 4 wire DC sensors with NPN/PNP, NO/NC or NAMUR output. Diagnostic LED and buzzer.

A comprehensive range of reflectors and reflective tape for use with photoelectric sensors. Reflectors can be screw mounted or are provided with an adhesive backing. **ER681** is a heated reflector, ideal for cold installations.

Galvanized or stainless steel mounting brackets for M8, M12, M18 or M30 sensors.

Universal mounting bracket for all cylindrical sensors with Ø4 to Ø30 mm. The mounting adaptor is supplied complete with 2 mounting heads (Ø18 and Ø30 mm) and 5 adaptor bushings (Ø4, Ø5, Ø8, Ø12 and Ø14 mm).

CARLO GAVAZZI Automation Components. Specifications are subject to change without notice. Visit GavazziOnline.com for more details.

Notes:

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Sensors 13

Solid State Relays & Contactors

Carlo Gavazzi is the preeminent innovator in the design and manufacture of solid state relays. They feature direct copper bonding technology for increased life and reliability. No other manufacturer in the industry offers as wide an offering of the various 'switching types' or the vast product breadth.

On this page, you can see our full range of single-pole, two-poles and three-pole, three-phase chassis mount type relays, which typically get mounted to an electrical enclosure's back panel, or to one of the dozens of various heat sinks Carlo Gavazzi offers.

Most zero switching solid state relays are used to switch resistive loads, to control heating elements in plastics, packaging, food processing, coffee making and solder reflow machinery. They are also used extensively as a solid state means to control motors – some relays are UL dual rated with amperage and Hp rating, and lighting loads.

For more detailed information, visit: www.Gavazzi*Online*.com/SSRs

Zero/Instant-on Switching	Zero/Instant-on Switching	Peak Switching	Analog Switching	Zero/Instant-on Switching
RF1A & RF1B	**RM1A & RM1B**	**RM1C**	**RM1E**	**RGS1A & RGS**

Compact chassis mount **RF1** relay requires 30% of the space that a standard hockey puck relay needs. They feature fast-on tabs and a pre-attached thermal interface, which ensure quick installation. These SSRs are ideal for resistive loads, up to 25AAC, and 280VAC. Integrated transils provide protection against over-voltages.

The chassis mount, single-phase relay is the most widely used industrial SSR. It can be used for resistive and inductive loads. **RM1A** zero switching type and **RM1B** instant-on type, are available in 25, 50, 75 and 100AAC outputs, for up 660VAC. MOV and snubber output protection is standard on all models.

The peak switching solid state relay was designed for heavy inductive loads of up to 30AAC. The relay switches on the load at zero current, which happens to be at peak voltage for large inductive loads such as transformers. Four inductive output ratings of 10, 20, 25 and 30AAC at up to 660VAC.

The analog switching relay works in accordance with phase angle control principle, where the switching point in the sine wave depends upon a proportional input which can be 4-20mA or 0-10VDC. **RM1E** offers four output ratings of 25, 50, 75 and 100AAC at up to 660VAC.

Slim **RGS1** panel mountable solid state relays are only 17.5mm wide. Nominal current ratings include 25, 50, 75 and 90AAC at up to 660VAC. Narrow width and larger output terminals make it ideal compared to standard chassis mount (hockey puck) SSRs.

DC Switching	2-Pole Zero Switching	2-Pole Zero Switching	3-Phase Zero Switching	Heat Sinks
RD	**RA2A**	**RK2**	**RZ3A**	**RHS**

The **RD** SSRs are used in fast switching applications of small DC loads with high input/output isolation of more than 4,000 VAC. The DC output switches ON and OFF in accordance with the applied DC control voltage. Outputs of either 5ADC at up to 60VDC or 1ADC at up to 350VDC.

2-pole SSR minimizes the space requirements without compromising performance. Two SSRs are built into a single **RA2A** 'hockey puck' SSR. Relay is rated up to 40AAC per pole, up to 660VAC. 0.25" fast-on terminals are utilized on output terminals for quick wiring. Choice of fast-on or pin-header for input voltage.

The **RK** is a series of 2-pole SSRs contained in one housing with the possibility to control each pole independently (**RKD2** models) or both poles together (**RK2** models). Ratings are up to 660VAC, 75AAC per pole. Input connectivity options include a 2.54mm male cable connector or a pluggable 5.08mm spring terminal.

This heat sink mountable 3-phase zero switching **RZ3A** SSR is designed to switch resistive and inductive loads up to 75 and 20AAC respectively, at up to 660VAC. Built-in varistors provide transient protection for heavy industrial applications. Optional over-temperature protection is also offered.

RHS Heat sinks are a necessary accessory for any chassis mount relay where more than 5 amps are being switched. Available for DIN rail, panel and through-the-wall mounting of one to multiple SSRs, the product offering dissipates from 4.0 to 0.12°C/W. Optional cooling fans are also offered.

Solid State Relays/Contactors for Panel Mounting

Carlo Gavazzi offers a complete range of Solid State Relays and Contactors which have an integrated DIN-rail adapter and/or a heat sink. Devices presented in this page are easy to specify and install. There is no need to calculate the heat sink size, apply thermal grease or properly mount the relay onto a heat sink.

Carlo Gavazzi's RGC Series features a full range of single-pole, two and three-pole, three phase devices. Standard integrated MOV and snubber protection, optional high I²t rating, and default 100kA SCCR when paired with a proper fuse, are making them ideal devices for use in harsh industrial applications.

The single phase RGC Series allows the user to select the position of the line and load power terminals. Terminals can be either side-by-side, on the bottom of the device, resembling conventional 'hockey-puck' SSR layout, or have the line terminal on the top, and the load terminal on the bottom, resembling the layout of an electromechanical contactor. Such an option allows the user to either keep all the low voltage wiring in the top wire tray and the power wiring in the bottom wire tray or separate line and load cables.

Zero/Instant-on Switching **RP1A/B...M1/2**	DC Switching **RP1D...M1/2**	Zero Switching **RGS1A...DIN**	Zero/Instant-on Switching **RGC1A/B Mini**	Zero Switching **RGC1A...32 Mini**

RP1A or **RP1B** are solid state relays for printed circuit board mounting, but when ordered with M1 (230VAC) or M2 (480VAC) suffix, they leave factory attached to a DIN rail adapter. Voltage rating includes 230VAC (12.5mm wide) and 480VAC (25mm wide), current rating up to 5.5AAC.

RP1D...M1/2 is a DC PCB SSRs that is factory mounted on a DIN rail adapter. The device is rated either 1, 4 or 8ADC at up to 60 (M1 suffix) or 350VDC (M2 suffix). The RP1D relay is ideal for applications where there is a need for fast switching of small DC loads.

RGS1A with suffix DIN is a variant of panel mount **RGS1A** relay. Relay is factory attached to a DIN rail adapter, which also acts as a small heat sink. **RGS1A...DIN** relays are available for applications up to 660VAC and 12AAC. Both contactor (E) and SSR (U) terminal layouts are available.

Mini size **RGC1** solid state relays and contactors with integrated heat sink maximize panel space. Up to 25AAC/3Hp in 17.5mm width and up to 30AAC / 5Hp in 22.5mm width. Up to 1,800 A2s I2t and 1,200 Vp blocking voltage. Nominal rating at 40°C. IP20 and MOV protection standard.

Mini 17.5mm **RGC1A...32** relay offers switching currents that are normally found in 22.5mm or even 45mm wide devices. Two output terminal versions are available, screw or box clamp, with respective current ratings of 30A or 37AAC at 40°C. I2t rating of 18,000 A2s is standard on all **RGC1A...32** models.

Zero/Instant-on Switching **RGC1A/B Midi**	Zero/Instant-on Switching **RGC1A/B Power**	3-Phase Zero Switching **RGC2A**	3-Phase Zero Switching **RGC3A**	3-Phase Zero Switching **RGC3A...48A**

Midi size **RGC1** model with integrated heat sink features 35.5mm wide construction. Electrical ratings of 43AAC/10Hp at 40°C and voltage up to 660VAC. High I2t rating of 18,000 A²s is available on some models. Both contactor (E) and SSR (U) terminal layouts are available.

Power line of the **RGC1** with maximum output rating of 85AAC/15Hp at 40°C. 65AAC/15Hp version uses natural air convection cooling, while the 85AAC/15Hp version uses a built-in fan to achieve its high rating. MOV protection is standard. 100KAAC SCCR UL508 rating.

Two-pole, three-phase, zero-switching, **RGC2A** solid state contactors are ideal for applications where frequent switching is required. Maximum rating per pole is 75AAC/25Hp at 40°C, 660VAC. MOV and snubber protection are standard.

Three-pole, three-phase, zero-switching, **RGC3A** solid state contactors can be used in 3-phase applications where all poles must open. Max. rating per pole is 65AAC/25Hp at 40°C, 660VAC. MOV and snubbers are standard.

RGC3A..48 is a three-pole, three-phase variant of the RGC3A, where a conventional, DIN-rail mountable heat sink is replaced with one that can be panel or thru-wall mounted. Amperage rating of 48AAC/25Hp at 40°C per phase is achieved without the use of a cooling fan.

CARLO GAVAZZI Automation Components. Specifications are subject to change without notice. Visit GavazziOnline.com for more details.

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Solid State Relays for Specialty Applications

System monitoring is an option that can be found in RA…S chassis mounted and several single, two and three-pole DIN-rail mountable Solid State devices. It offers timely failure detection. Detectable conditions include mains loss, load loss, SSR open and short circuit and SSR internal fault and supply out the range. NRG system takes the monitoring to the next level, where fault conditions, as well as instantaneous system measurements and load's energy consumption, can be transmitted to the main controller via Modbus communication.

Zero, Instant-on or Peak Switching Solid State Relays can only switch connected loads on and off in accordance with the control signal. On the other hand, proportional output relays, control the power to the load in proportion with the analog input signal. Benefits of using proportional output Solid State Relays include higher precision of power output control and if implemented correctly, extended life of the connected heating element. Carlo Gavazzi offers an unparalleled arrangement of single and three phase proportional output devices, with the industry-leading assortment of switching types, input signals and amperage ratings.

PCB Mounting AC **RP1A & RP1B**	PCB Mounting DC **RP1D**	System Monitoring **RA…S**	1-Phase Monitoring **RGS..M & RGC...M**	System Monitoring **RGS1S & RGC1S**

The **RP1A** and **RP1B** are small SSRs for socket or printed circuit board mounting. Amperage rating is up to 5.5AAC, or 10AAC (version with integrated heat sink) at up to 480VAC. **RP1A** works according to zero switching principle, while **RP1B** is the instant-on type relay.

The **RP1D** is a DC SSRs for DIN socket or printed circuit board mounting. The device is rated either 1, 4 or 8ADC, at up to 350VDC. The **RP1D** relay is ideal for applications where there is a need for fast switching of small DC loads with a high input to output isolation of 4000VAC.

The **RA..S** system monitoring relay not only switches loads up to 110AAC at up to 530VAC, it also monitors and alarms the user if anything is wrong with the line voltage, load current, current through the SSR or if there's anything wrong with the input status vs. the output status.

The **RG1..M** solid state devices incorporate monitoring functions for detection of mains and load loss, SSR open and short circuits and internal faults. The **RGS1A..M** is rated up to 90AAC with proper heat sink, while the **RGC1..M** is rated up to 65A. Line voltage rating is up to 660VAC.

This **RG** design is capable of load switching as well as detecting of full or partial load failures, open or short SSR circuit, and SSR over temperature. Product is available in versions without heat sink (**RGS1S**) or with heat sink (**RGC1S**). Available current range is up to 85AAC at 40°C.

Integrated with Fusing **RGC1F**	Monitoring & Comms **NRG System**	1-Phase Proportional **RGC1P**	3-Phase Monitoring **RGC2..M & RGC3..M**	3-Phase Proportional **RGC2P & RGC3P**

The **RGC1..F** combines three functions in one: switching, circuit protection by means of integrated semiconductor fuse and optionally, system monitoring. Front panel can be opened for easy access to the fuse. Fuse holder accepts fuses from most manufacturers. Alarms are indicated by a red LED and auxiliary alarm output. Current rating up to 40AAC.

The **NRG** is a system consisting of a master controller and up to 48 slave **RG..N** solid state relays and contactors. The Modbus RTU interface allows per relay read out of instantaneous variables and energy consumption. The **RGS1A..N** is rated up to 90AAC with proper heat sink, while the **RGC1..N** is rated up to 65AAC with integrated heat sink.

Analog switching **RGC1P** SSR with integrated heat sink is a single phase device that provides proportional output control. This microprocessor controlled device offers the flexibility of five switching modes in one flexible package: Maximum current range is 63AAC, controlled by 4-20mA, 0-5, 1-5 or 0-10VDC.

The **RGC2A** and **RGC3A** solid state contactors are available with the system monitoring option that is offering detection of SSR over-heating, mainsz and load loss. The **RGC2/3..M** features LEDs for load and alarm indication as well as transistor alarm and auxiliary outputs. The monitoring option is available on most **RGC2A** and **RGC3A** devices.

The **RGC2/3P** solid state controllers, provide proportional output control. This microprocessor controlled device offers several switching modes such as phase angle, full distributed cycle or soft start. Maximum current range is up to 75AAC (**RGC2P**) and 65AAC (**RGC3P**), controlled by several types of analog input signals.

CARLO GAVAZZI
Automation Components

Contactors, Overloads & Manual Motor Starters

CARLO GAVAZZI is proud to present our expanded range of contactors and overloads, as well as our comprehensive offering of manual motor starters.

The product offering starts with mini-contactors in a compact 12 amp frame size (7.5Hp), followed by midi-contactors in up to 100 amp frame sizes (75Hp), and topped off with the power-contactors which offer up to 800 amp frame sizes (600Hp). All of the midi-contactors, 9-100AAC (5-75Hp), also have CSA elevator ratings.

For price conscious application requirements, we offer definite purpose contactors available in one, two, three and four pole output configurations with maximum output ratings from 25 to 90AAC.

Electronic overloads, enclosed manual motor starters and other contactor accessories are also available.

For more detailed information, visit: www.Gavazzi*Online*.com/Contactors

Mini Contactors **CGM**	IEC Midi Contactors **CC**	IEC Power Contactors **CC**	Mini Overloads **CGT-12M**	IEC Overloads **GT**

Electromechanical 3-phase switching. AC3 480VAC rating 6, 9 and 12AAC. cUL ratings up to 7.5Hp. One auxiliary contact. Full arrangement of AC and DC coils and accessories. Connection choices of screw, cage clamp, fast-on and pin terminals.

Rugged 3 or 4-pole contactors with AC3 480VAC ratings of 9-100AAC, cUL ratings of 5-75Hp. Full range of AC or DC coils. Screw and lug terminals. One or two sets of auxiliary contacts. Accessories include overloads, reversing kits, extra auxiliary contacts and surge suppression units.

Rugged 3 or 4-pole contactors with AC3 480VAC rating from 130–800AAC. cUL ratings of 75-600Hp. Two sets of auxiliary contacts are standard. Popular upgrades include extra auxiliary contacts, overloads and reversing interlocks. Full arrangement of AC, DC or AC/DC coils.

Bi-metallic overloads fit all sizes of mini contactors and protect motors from overloading and phase loss. One frame size and thirteen overload ranges protect motors with nominal rating ranging from 0.1-13AAC.

Rugged bi-metallic GT overloads attach directly to all sizes of CC contactors and protect motors from overloading and phase loss. Seven frame sizes protect motors ranging from 0.1-800AAC. Direct and separate mounting models are available.

Electronic Overloads **CGE**	Manual Motor Starters **GMS**	Definite Purpose Contactors **GDP**	Enclosed Starters **CGP**	Accessories for Contactors & Manual Motor Starters

Electronic overloads use solid state technology to detect overload and phase loss, as well as phase reversal and unbalance. Wide overload range and user selectable trip class. Three frame sizes, protecting motors from 0.3-85AAC. Direct, separate and through-hole mounting styles.
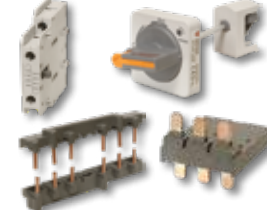
Manual motor starters combine functionality of bi-metallic overloads with magnetic short circuit protection. Available in three frame sizes with full load ratings up to 100AAC and short circuit protection up to 100kA. Adapters are available for direct connection to CC contactor sizes from 9 through 100AAC.

Cost-effective range of contactors offered in single, single+shunt, two and four pole normally open contact arrangements for 25-40AAC maximum AC3 ratings with screw or lug load terminals standard and in three pole from 25-90AAC with lug load terminals standard. Multiple 0.25" fast-ons are also standard for control and load terminals.

NEW

Enclosed starters housed in NEMA 4 metallic enclosures. Available for both both single and three phase motors up to 600V/600Hp and featuring a compact, space saving design. Available options include a broad range of control and pilot light layouts, integrated control transformer and both fused and non-fused disconnects.

Auxiliary contacts for contactors and manual motor starters. Bridges connect the contactors to manual motor starters to form a monolithic motor starter. Rotary handles, plastic enclosures and busbars for manual motor starters. Coil surge absorbing units. Mechanical interlocks and wiring links simplify wiring of reversing starters.

Circuit & Motor Protection Devices

The circuit breaker plays an important role in providing short circuit, overload and disconnect protection in electrical systems. Carlo Gavazzi offers an extended range of UL489 miniature circuit breakers, UL 508 manual motor controllers and UL1077 supplementary protectors that are suitable for most over-current protection applications.

Our surge protection devices feature products for protection against any type of overvoltage: TOVs, switching over-voltages, direct and indirect lightning strikes. They are designed to protect high voltage DC lines, single or three phase AC lines, serial communication lines and devices, as well as the Carlo Gavazzi Dupline® devices.

For more detailed information, visit: www.Gavazzi*Online*.com/Contactors

UL 489 MCB	UL 1077 SP	UL 508 MMS	AC Surge Arrestors	DC Surge Arrestors
GMB	**GSB**	**GMS**	**DSF A/P**	**DSF D**

UL 489 miniature circuit breakers provide reliable protection in wide range of applications including branch circuit protection of HVACR equipment, power supplies, motors, receptacles and other equipment. 1, 2 and 3 pole arrangements are available, ranging from 0.5A to 63A and has short circuit interrupt capacity of 10kA.

UL 1077 supplementary protectors offer overcurrent protection for specific applications where branch circuit protection is already provided by another device or is not required. Product is available in 1, 2, 3 and 4-pole variations, ranging from 1 to 63Amps and has a short circuit rating of 5kA.

Manual motor starters combine functionality of bi-metallic overloads with magnetic short circuit protection. Available in three frame sizes with full load ratings up to 100AAC and short circuit protection up to 100kA. Adapters are available for direct connection to CC contactor sizes from 9 through 100AAC.

Protect single and three-phase installations (<550VAC) from transient over-voltage, indirect atmospheric discharge and switching with this Type 2, Class C, surge protection device. The **DSF..A/P** is for AC systems and is UL1449 3rd Edition approved. No backup fusing is required below 200kArms.

Protect the investment in solar PV installations (<1200VDC) from transient over-voltage, indirect atmospheric discharge and switching with this Type 2, Class C, surge protection device. The **DSF..D** is for DC systems and is UL1449 3rd Edition approved. No backup fusing is required below 200kArms

Accessories for
GMB and GSB

To expedite wiring and installation, busbars connect multiple UL 489 miniature circuit breakers to one another, or multiple UL1077 supplementary protectors to one another. Auxiliary contacts, shunt releases, alarm switches and feeder terminals are also offered.

Switches

Solid State Motor Controllers

Carlo Gavazzi offers a range of solid state motor controllers for starting and stopping of three phase general purpose squirrel cage motors and starters dedicated to control of single and three phase scroll compressors and three phase pumps.

Applications for general purpose soft starters include conveyor systems, industrial driers, automatic doors, palletizers and fans. Applications for compressor soft starters include heat pumps, chillers and roof tops units. Pump soft starters are designed to control centrifugal pumps.

General purpose soft starters for induction motors come with ramp up/down and overload controls, while compressor soft starters do not require any user adjustments. Pump starters offer a mix of user adjustable dials and sophisticated self-learning algorithm that assure optimized pump start.

For more detailed information, visit: www.Gavazzi*Online*.com/SoftStarters

1-Phase Motors **RGTS**	1-Ph Compressors & Pumps **HDMS**	1-Phase Compressors **RSBS**	3-Phase Motors **RSGD**	3-Phase Pumps **RSWT**

The **RGTS** is a full solid-state, compact and easy to use soft starter for single phase two wire AC induction motors. Motor ramp-up time and initial torque can be adjusted through the built-in potentiometers. Three amperage ratings are available; 12, 16 and 25AAC, while the operational voltage range is 100-240VAC.

The **HDMS** is a soft starter for single phase scroll compressors, hydraulic and submersible pumps up to 253VAC and 37AAC. Through an innovative control strategy, Capacitor Start-Capacitor Run motors can now be started without a start capacitor. Modbus RTU, NFC and class 10 overload are standard.

Compact single phase scroll compressor soft starter with integrated start capacitor. **RSBS** is available in standard 25A and High Pressure 32A sizes. High Pressure version provides a dynamic current limiting that ensures compressor starting even at higher starting pressures with maximum current limit of 80AAC.

RSGD is an extremely compact and easy to use 3-phase soft starter for AC induction motors rated up to 100Arms. The starting parameters can be easily set-up through 3 knobs. The integrated motor overload protection (Class 10) and Modbus communication on larger frame models, result in a higher installation flexibility.

3-phase controlled soft starter for centrifugal pumps. Three frame sizes are available with amperage rating ranging from 12 to 90AAC. The **RSWT** has a number of diagnostic functions including phase-sequence, over and under voltage and SCR short circuit. Built-in Class 10 overload is an option on all three frame sizes.

3-Phase Compressors **RSBD & RSBT**	1-Ph Solid State Contactors **RGC1A**	3-Ph Solid State Contactors **RGC2A & RGC3A**	Solid State Contactors **REC2B & REC2R**	Reversing Relays **RR2A**

RSBD (two-pole switching) and **RSBT** (three-pole switching) are easy to use soft-starters for scroll compressors. Both are equipped with patented auto-adaptive algorithm that automatically adapts itself to performance of each specific compressor. **RSBD** and **RSBT** are rated up to 95A and 480VAC. Modbus RTU is available.

Single phase **RGC1** solid state contactors can be used to control resistive loads as well as be part of AC induction motors starter. UL approved Hp ratings range from 1/3Hp (AC53a: 5A) at 115VAC to 15Hp (AC53a: 20A) at 660VAC. Robust construction of the **RGC1** family allows for up to 30 starts per hour.

These two and three pole products are solid state alternatives to electromechanical contactors. **RGC2A** or **RGC3A** offer maximum motor rating of 28AAC / 25HP at 660VAC and 40°C. MOV and snubber protection are standard. Models with system monitoring, over-temperature alarm and auxiliary output are available.

Electronic contactor (**REC2B**, **REC3B**) and reversing contactor (**REC2R**) for 2 or 3-phase switching of motors up to 5.5 Hp. Product is intended to replace traditional electromechanical contactors and reversing contactors.

RR2A is solid state reversing relay for 3-phase induction motors. LED indication for "forward" and "reverse" mode indication. Motor rating: three phase up to 7.5 Hp. The output is protected from excessive voltage fluctuations (transients) by built-in varistors.

CARLO GAVAZZI Automation Components. Specifications are subject to change without notice. Visit Gavazzi*Online*.com for more details.

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Industrial Relays & Sockets

Carlo Gavazzi offers a comprehensive range of electromechanical relays for industrial automation.

They are available for plug-in, surface and PCB mounting. Many of our relays come standard with a push-to-test button as well as an orange flag or LED indicator

Carlo Gavazzi relays are frequently used in control panels, in HVAC control systems, pump and compressor control, as well as electronic consumer products. These are typically used to switch loads such as heaters, lights and motors.

Additionally, Carlo Gavazzi offers a complete range of relay sockets, for back panel or DIN rail mounting.

For more detailed information, visit: www.GavazziOnline.com/Relays

Industrial **RCI**	Midi Industrial **RRM**	Midi Industrial **RPY 1/2/3/4**	Slim **RSLM**	Power 1 & 2 Pole **C F/S & N A/F/P**
2 and 3 pole relays for a wide range of industrial applications. Available in 8 or 11 pin versions. Up to 10AAC output contacts. Pair with **ZCI** sockets.	High switching power (2 or 4 pole, up to 10AAC) in a very compact relay size. Standard indicating LED, push arm and test flag. Pair with **ZRM** sockets and auxiliary modules.	Available in 1, 2, 3 and 4 pole changeover contact configurations for up to 10AAC (2, 3 and 4 pole) or 16AAC loads (1 pole). High switching power and high reliability for a wide range of industrial applications. Pair with **ZPY** sockets.	Slim 5mm wide relay with 6A switching capacity. Suitable for use with PLCs, valves actuation or solenoids. DIN rail or PCB mount. Pair with **ZRLS** sockets.	High power relay, in a sealed design, ideal for vending machines, copiers, compressors and control equipment. Switching capacity up to 30AAC. Reinforced insulation 4 kV / 8 mm (0.31").

Sockets **ZCI**	Sockets **ZRM**	Sockets **ZPY**	Sockets **ZRLS**
Sockets for **RCI** relays, rated voltage / rated current 10 A at 400 VAC. Terminal type: screw cage	Sockets for **RRM** relays, rated voltage / rated current 10 A at 300 VAC. Terminal type: screw cage	Sockets for **RPY** relays, rated voltage / rated current 10 A at 300 VAC. Terminal type: screw cage	Sockets for **RSLM** relays, rated voltage / rated current 6 A at 250 VAC. Terminal type: screw cage or spring loaded terminal

CARLO GAVAZZI
Automation Components

CARLO GAVAZZI

Limit Switches

Carlo Gavazzi offers a complete range of limit and safety switches, providing machine manufacturers and panel builders with unparalleled solutions, allowing machinery to operate correctly, thus minimizing process stops and personnel risk. Limit and safety switches, classified by application, allow for an easier selection of the right switch.

There are over 8,000 different types for industrial automation as well as for elevator and door applications, facilitating reliable and safe operation of machinery for personnel.

For more detailed information, visit: www.Gavazzi*Online*.com/LimitSwitches

Limit Switches **PS21L**	Limit Switches **PS31L**	Limit Switches **PS42L**	Limit Switches **PS43L**	Pre-Wired Switches **PS21M**

Miniature standard housing, with one cable/conduit entry. 25 different actuator options. 6 different contact block choices. Available in metal or plastic housing. Robust switch in compact package.

Full-size, standard housing, with one cable/conduit entry. 20 different actuator options. 10 different contact block choices. Available in metal or plastic housing. Robust switch in traditional package.

Compact standard housing, with two cable/conduit entries. 18 different actuator options. 6 different contact block choices. Available in metal or plastic housing. Robust switch in compact package.

Large standard housing, with three cable/conduit entries. 20 different actuator options. 10 different contact block choices. Available in metal housing. Robust switch in large package.

Miniature limit switch with 20mm mounting hole spacing. Pre-wired with 1m (3.3 ft.) of cable. 15 different actuator options. 2 different contact block choices. Available in metal or plastic housing. Fully potted with

Pre-Wired Switches **PS31M**	Safety Switches **Manual Reset**	Safety Switches **Cable Pull**	Safety Switches **Door Interlock**	Safety Switches **Hinge Switch**

Miniature limit switch with 25mm mounting hole spacing. Pre-wired with 1m (3.3 ft.) of cable. 15 different actuator options. 2 different contact block choices. Available in metal or plastic housing. Fully potted with IP67 rating.

Safety switch which becomes disabled when tripped, requiring manual reset. Typically used for detecting over-travel conditions. 2 different housing size options. 5 different actuator options. Available in metal or plastic housings.

Emergency stop switch, ideal for providing worker access over long areas (such as conveyors). Available with or without manual reset button. 4 different housing size options fit most preventative guard doors.

Safety switch used to monitor guard doors, and restrict machine operation when safety doors are not properly closed. 4 different housing size options. Choice of 7 different keys, to fit most guard doors.

Safety switch used to monitor swinging guard doors and restrict machine operation when safety doors are not properly closed. Switch mounts on top of machine, and pin is inserted into the door hinge or lever, typically secured to top of door. 2 different housing size options.

CARLO GAVAZZI Automation Components. Specifications are subject to change without notice. Visit Gavazzi*Online*.com for more details.

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Push Buttons & Pilot Lights

Industrial manufacturing equipment command devices are of great importance in human-machine interfacing, which is precisely why Carlo Gavazzi offers a complete range of push buttons and pilot lights.

These products are designed to provide users with the flexibility to meet the requirements of a broad range of applications.

Economical in size and flexible in function, they can be mounted to switch boards, control panels, operator's consoles, on conveyors and in elevators/lifts.

Pushbuttons, selector switches, mushroom head type, key switch and pilot lights are available in six different colors and multiple contact configurations.

For more detailed information, visit: www.Gavazzi*Online*.com/PushButtons

Push Buttons **PB..B**	Emergency Stop **PB..E**	Selector Switches **PB..K/L/S**	I/O Push Buttons **PB..I**	Push Button Boxes **PBBOX**

Pushbutton switches to open or close electric contacts.They are mostly used to start/ stop electric circuits or devices like lamps, motors, etc. Choice of 6 colors, illuminated or non-illuminated. Flush and extended options. Maintained or spring-return operation. 22mm hole size. 40 & 60mm mushroom head, push-pull options.

Red emergency stop pushbutton switches. Twist-to-release function. 40mm and 60mm button size options. 22mm hole size.

Selector switches are mechanical switches that can be turned right, center or left to open or to close the electric contacts. Short and long handle options. 6 different color choices, including illuminated options. 22mm hole size. Keyed selector switches are also available for higher security applications.

I/O push button switches are mostly used to start/stop electric circuits/devices like lamps, motors, etc. Illuminated or non-illuminated, in 22mm hole size.

Plastic boxes for push button and pilot lights. **PBBOX** series is available in choice of yellow or grey cover, and 1-5 holes.

High/Concentric Lens **PL..H/R**	Low/Teeth Lens **PL..L/T**	Flash Light **PL..F**	Two Color **PL..TC**	Buzzer/Flashing **PL..BZ**

Pilot lights are panel mounted (22mm hole) lamp assemblies consisting of the indicator housing, an internal high brightness pure color LED, terminals, and a lens. Choice of 5 colors (red, white, blue, yellow, green) in high profile lens or lens with concentric circles. Offered in 8 different voltage ranges, from 6V to 380V. Compact versions available for shallow panels.

Pilot lights are panel mounted (22mm hole) lamp assemblies consisting of the indicator housing, an internal high brightness pure color LED, terminals, and a lens. Choice of 5 colors (red, white, blue, yellow, green) in a low profile lens or lens with aesthetically stylish notched out teeth. Compact versions available for shallow panels.

Flashing pilot lights are panel mounted (22mm hole) lamp assemblies consisting of the indicator housing, an internal high brightness pure color LED, terminals, and a lens. Choice of 5 colors (red, white, blue, yellow, green). Available in 8 different voltage ranges, from 6V to 380V.

Two-color pilot light (red and green) are panel mounted lamp assemblies consisting of the indicator housing, two-color internal high brightness pure color LED, terminals and a lens. Available in 8 different voltage ranges, from 6V to 380V. Conserve panel space and minimize cutouts with this dual-function indicator.

Buzzers (black) or flashing buzzers (red) are panel mounted device assemblies consisting of the housing, an internal lamp or buzzer, terminals and a cover. For 22mm panel holes. Available in 8 different voltage ranges, from 6V to 380V.

CARLO GAVAZZI Automation Components. Specifications are subject to change without notice. Visit Gavazzi*Online*.com for more details.

Notes:

CARLO GAVAZZI Automation Components. Specifications are subject to change without notice. Visit Gavazzi*Online*.com for more details.

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Monitoring Relays

Carlo Gavazzi monitoring relays are used in a wide range of applications to protect one of the most critical elements in manufacturing and process control: the motor. Whether your target concern is compressors, pumps, HVAC systems or conveyors, the Carlo Gavazzi monitoring relay offers a long lasting, and reliable, solution to protect your investment and minimize costly downtime. Our family of monitoring relays will detect overloads, phase sequence and phase loss, regenerated voltage, phase asymmetry, tolerance, power factor and leakage current. We capture anomalies before they become serious problems.

Additionally, our monitoring relays are the solid choice to detect broken heater elements and are well suited for monitoring of lighting systems within an automated building system.

For more detailed information, visit: www.GavazziOnline.com/MonitoringRelays

Current Relays
DIA & DIB

DIA AC/DC over current monitoring relay and **DIB** TRMS AC/DC over or under current monitoring relay. Direct input measurement or for use with a current transformer. 11-pin **PIA**/**PIB** plug-in types are also available. 5A maximum monitoring (higher with a CT).

Current Relays
DIC

TRMS AC/DC over+under, over+over or under+under current and voltage monitoring relays. **DIC01** can also perform +/- DC measurement. 11-pin **PIC** plug-in types are also available. 10V maximum monitoring; up to 500AAC (1 or 3-phase) with an **MI** or **MP** CT.

Voltage Relays
DUA / B / C

DUA AC/DC over voltage monitoring relay and **DUB** TRMS AC/DC over or under voltage monitoring relay. **DUC** features over+under, over+over or under +under voltage monitoring. 11-pin **PUA/ PUB/PUC** plug-in types are also available. 500VAC/DC maximum monitoring.

Undervoltage Relay
DUB72

DUB72 Double under voltage monitoring relay approved for use in Class I Div. 2 hazardous locations. This relay can be used to help prevent brownouts in 24VDC supplied systems in any application, including hazardous environments. Two independent outputs for pre-alarm and alarm.

3-Phase Relays
DPA & DPB

DPA phase loss and sequence relay and **DPB** over+under voltage, as well as phase sequence and loss monitoring relay. 11-pin **PPA**/**PPB** plug-in types are also available. 690VAC maximum monitoring.

3-Phase Relays
DPC

TRMS over+under, phase sequence and phase loss, two relay alarm outputs plus phase asymmetry and tolerance monitoring relay. 11-pin **PPC** plug-in types are also available. 690VAC maximum monitoring.

3-Phase Multi-function
DPD

3-phase voltage and frequency monitoring relay provides protection against phase reversal/loss and if the phase asymmetry, voltage or frequency are not within the user-configured settings. The **DPD** settings can be modified through a smartphone/tablet or via a USB NFC Reader/Writer. 552VAC maximum monitoring.

Earth Leakage Relays
DEA71 & DEB71

Earth leakage monitoring relay, used with core balance current transformer **(CTG)** and circuit breakers to provide protection against fault currents and to reduce fire hazards. **DEA71** has fixed settings for fast installation, and **DEB71** has adjustable sensing ranges and time delay to customize for any application.

Frequency Relays
DFB & DFC

Over+under 50/60Hz frequency monitoring of its own power supply. Programmable latch/inhibit function, and adjustable delay ON alarm. 11-pin **PFB** plug-in types are also available.

Power and Cosφ
DWA & DWB

Over or under Cosφ monitoring relay (**DWA**) and TRMS AC active power and power factor monitoring relay (**DWB**) for balanced 3-phase system. 11-pin **PWA** plug-in types are also available. 480VAC max. monitoring, maximum current is determined by the primary of the **MI, MP** or 5A secondary CT.

CARLO GAVAZZI Automation Components. Specifications are subject to change without notice. Visit GavazziOnline.com for more details.

Monitoring Relays (continued)

Carlo Gavazzi monitoring relays are available, with the same functions, in up to three different housings: the standard DIN-rail mount types, perfect for industrial panels, the plug-in housing to allow fast and safe replacement (without moving cables), and the Mini-D housings for space-saving compact DIN-rail mounting.

When considering lifts/elevators, escalators and cranes, the direction of the motion must be 100% correct. Phase sequence relays are a fast, reliable and easy-to-maintain solution. In overload conditions, the motor temperature can damage and eventually burn up the motor. The DPA51 provides detection of the voltage regenerated by the motor during phase loss. This means that the motor won't overheat, burn or cause danger.

Interface Protection **DPC02**	Temperature Relays **DTA**	Alternating Relays **DLA**	Current Relay w/Thru-Hole **DIA 53**	Current Relay w/Thru-Hole **DIB 100A**

DPC02 3-phase monitoring relay for maximum and minimum voltage and frequency, phase sequence and phase loss. It also checks that the frequency and voltage are within the limits required by the utility company. 690VAC maximum monitoring.

DTA thermistor relay used to monitor the temperature of the coils of a motor with built-in PTCs. 11-pin **PTA** plug-in types are also available.

DLA relay will automatically alternate two or three pumps in a multiple pump system.

DIA series TRMS AC current monitoring relays is self-powered, compact and features a built-in current transformer that measures from 2-100AAC. Output is a normally open NPN-PNP open collector. Through-hole size is 12mm.

DIB series TRMS AC over or under current monitoring relay with a built-in current transformer that measures from 2A to 100A AC. Through-hole size of 12mm.

Current Transducers **E83 & A82**	Current Transformers **CTD**	Current Transformers **CTD-S & SCT**	Core Balance Transformer **CTG**

E83 Compact AC current metering transducer with 7 selectable primary ranges up to 50AAC and a 12mm through hole. Also offered in a cabled version, type **A82** in a 25, 50, 100, 250 and 500AAC primary range with a 0-20mA, 4-20mA or 0-10VDC output and 27mm through hole.

Cable/Bus-bar type current transformer with DIN-rail/bus-bar and panel mounting facility. The **CTD** series is rated maximum primary currents from 50 to 2,000AAC.

The **CTD-S** and **SCT** split-core current transformer with bus-bar mounting facility. Rated maximu!m primary currents from 100 to 2,000AAC.

CTG core balance transformer used with **DEA71** and **DEB71** to detect residual current on monitored line. Provides output when a current imbalance is detected. 6 models with through hole sizes from 35mm to 210mm.

CARLO GAVAZZI Automation Components. Specifications are subject to change without notice. Visit Gavazzi*Online*.com for more details.

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Power Supplies

Carlo Gavazzi power supplies, from 5 watts to 960 watts, are found wherever DC power is required, with a variety of output voltages from 5VDC to 48VDC.

SPDC and SPDM DIN rail power supplies offer the features required for today's industrial automation applications, and feature reduced housing sizes which conserve valuable panel space.

SPD industrial power supplies, with 1-phase, 2-phase, and 3-phase input, can be cascaded in parallel to further extend the range. Most models are approved for Class I, Division II hazardous locations. The majority of power supplies up to 100 watts are UL1310 Class 2 certified.

At merely 2.2" deep, the SPM low profile power supplies are perfect for shallow panels and commercial installations.

For critical applications, redundancy modules, a complete line of UPS controllers and battery chargers are available. Compact SPPC enclosed power supplies are ideal for vending machines, commercial food ovens and warming equipment.

For more detailed information, visit: www.GavazziOnline.com/ PowerSupplies

1-Phase **SPDC**	1-Phase **SPDM**	1-Phase **SPD**	Bi-Phase **SPD**	3-Phase **SPD**

High efficiency and performance in slim housing. Built-in active PFC, DC OK relay output, Power Boost, and parallel connectivity are included. Output power: 120, 240, or 480 watts. Output voltages of 12, 24, or 48V DC.

A single phase family with essential features, in a compact housing. Adjustable output, universal input voltage, short circuit protection and input filter. Output power options include: 30, 50, 72 or 120 watts. Output voltages include 12, 24, or 48V DC.

Adjustable output power supplies feature a universal input voltage, noise filter and short circuit protection. Output power: 5, 10, 18, 30, 60, 90, 100, 120, 240 or 480 watts. Output voltages of 5, 12, 15, 24 or 48 VDC. Most approved for Class I, Division 2 installations.

No need for a control voltage transformer due to this model's high-voltage, bi-phase input of 380-575 VAC. This power supply provides 100 watts of power at 24 VDC. Approved for Class I, Division 2 installations.

This 3-phase series is available with output power levels of 120, 240, 480 or 960 watts, without voltages of 12, 24 or 48 VDC. Connection via bi-phase input power is possible with an output de-rating of 75%. Approved for Class I, Division 2 installations.

Low Profile **SPM**	Redundancy **SPD & SPM**	Enclosed Power **SPPC**	Power Supply & UPS **SPUB**	UPS Controller **SPUC**

These power supplies feature a low profile depth of 2.2" (56.5mm). Output power levels consist of 7.5, 10, 15, 25, 30, 35, 54, 60, 72, 91 and 100 watts in voltages of 5, 12, 15 and 24 VDC. Most models are UL1310 Class 2 compliant.

The redundancy modules permits the connection of two identical 24 VDC power supplies where one serves as the backup for the other should one fail. The **SPD** version handles 20A total current and the **SPM** version handles 10A total current.

Compact, powerful 25, 35, 50, 75, 150, 200, 240, 320, 480, 600 and 800W enclosed power supplies, which includes built-in fans (>150W) with speed control, as well as active PFC (>150W). They feature universal AC/DC input, high efficiency, very low standby power consumption, and high MTBF. Output voltages are 5, 12, 15, 24, 36 and 48VDC.

A fully independent DC UPS unit with a unique energy management concept. The power for the load is managed independently from charging the battery, with priority given to the load. Continuous output is 5A, with up to 10A possible by utilizing power from the battery. Racks for DIN-rail mounting of batteries are also available.

Controller converts an existing, standard power supply into a fully functional UPS. 12VDC or 24VDC versions available, 30A output maximum. DIN rail mounted. Racks for DIN-rail mounting of batteries are also available.

CARLO GAVAZZI

Timers

Carlo Gavazzi offers a comprehensive range of timers that can be mounted within the enclosure or through the front panel. Available in several different housing styles, each has either a SPDT, DPDT or 4PDT relay output and features one or more common timing functions: On Delay, Off Delay, True Delay on Release, One Shot, Zero Speed, Start-Delta and Recycler. Most feature multi-voltage supply and timing ranges from 0.1 second through 100 hours. This wide range of functionality means Carlo Gavazzi has a solution for most of your timing applications.

For more detailed information, visit: www.Gavazzi*Online*.com/Timers

Delay on Operate **DAA**	Delay on Release **DBA & DBB**	Recycler **DCB**	Star Delta **DAC**	Multifunction **DMB & DMC**

Our multi-voltage delay on operate timer with seven time ranges covering 0.1 second to 100 hours. SPDT or DPDT relay output. Clearly marked front knobs allow simple setup. 11-pin plug-in version is also offered (**PAA**).

Multi-voltage delay on release (**DBA**) and true delay on release (**DBB**) series are available with up to seven time ranges covering 0.1 second to 100 hours. SPDT or DPDT relay output. Each features simple setup and clearly marked front knobs. 11-pin plug-in versions are also offered (**PBA**/**PBB**).

A variety of processes require an event to take place for a certain time and then wait for another delay. This recycler series offers full flexibility for both ON and OFF time from 0.1 second to 100 hours. Also available in 11-pin plug-in version, **PCB**.

Star-delta is a proven solution to avoid undesired inrush current while starting a motor, as well as the subsequent voltage drop. This compact series is also available in an 11-pin plug-in version, **PAC**.

Universally powered, each series features seven timing functions in a compact housing. The **DMB** series has a SPDT relay and the **DMC** offers a choice of SPDT or two SPDT relays, one of which can be configured as instantaneous. 11-pin plug-in versions are offered as **PMB01** and **PMC01**.

Mini-E **EAS, EBS & ECS**	Multifunction **FAA, FMB & FMC**	Multifunction **HAA**

Single-function and compact, these low cost timers feature two wire connections and a solid-state SCR output. Dedicated timing functions are on-delay (**EAS**), interval (**EBS**) and recycler (**ECS**). Available with screw or fastons terminals.

This series offers the panel builder the choice of a front panel installation or 8-pin (**FAA08**) or 11-pin (**FAA01**) socket/DIN-rail installation inside the enclosure. Easy adjustment and clear LED indication offer simplicity of operation for one of four timing functions using the **FAA** or the seven functions of the **FMB**.

This popular miniature housing provides multifunction and multi-voltage supply with just two models, a DPDT (**HAA08**) and 4PDT (**HAA14**). Each features delay on operate, symmetrical recycler "ON" first, symmetrical recycler "OFF' first and Interval timing functions.

CARLO GAVAZZI Automation Components. Specifications are subject to change without notice. Visit Gavazzi*Online*.com for more details.

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Energy Meters, Data Loggers & Transducers

Carlo Gavazzi supplies energy meters and power analyzers that provide information so that operators can identify consumption trends and take corrective actions. Analyzing the power profile, operators can aggregate loads and negotiate favorable terms with the utility company.

Carlo Gavazzi's energy management program also includes hardware and software products for data-logging of instantaneous electrical and environmental variables and energy consumption profiles. VMUC or UDP platforms use industry standard communication protocols, can provide complete stand-alone, data-logging solution or function as data gateway to IoT servers. Also offered is a wide range of current transformers, that can be connected with all the existing wire terminals and installed either on DIN-rail, around busbars or directly onto back panels.

For more information, visit: www.GavazziOnline.com/EnergyManagement

Modular Power Analyzer **WM20**	Modular Power Analyzer **WM30**	Modular Power Analyzer **WM40**	Branch Circuit Analyzer **WM50 & TCD12**	Current Transformers **CTD.X & CTD.S**

Modular power analyzer for 3-phase systems with simplified user interface and LCD data display. Plug and play modules. Active and reactive energy. Optional modules for **WM20**: Modbus-RTU, TCP/IP, BACnet MS/TP or IP, Profibus, and dual relay output. Integrated optical port for OptoProg connectivity. Meter is rated up to 690VAC.

WM30 is a 3-phase smart power analyzer with built-in application configuration system and LCD data display. Plug and play modules. Total energy counting up to ten digits. Optional communication: same as WM20 plus EtherNet/IP, dual relay and analog outputs. WM30 is Go Solar California eligible. Meter is rated up to 690VAC.

3-phase smart power analyzer with an option for integrated data logging. **WM40** measures instantaneous and min/max variables, four-quadrants of energy and harmonic analysis. Optional communication: same as WM30, relay and analog outputs, digital, process and temperature probe inputs. Meter is rated up to 690VAC.

Multichannel power analyzer. Using **TCD12** split-core current sensors, **WM50** can monitor any combination of single, two and three-phase loads for a maximum of 96 channels. Optional modules: Modbus-RTU or TCP/IP communication, I/O module or analog and temperature probe input module. Meter is rated up to 552VAC.

The **CTD.X**, the permanent core, cable/bus-bar type current transformer with DIN-rail/busbar and panel mounting facility. **CTD.S**, the split-core current transformer with similar mounting options. Rated maximum primary currents from 1 to 4,000AAC, with a secondary rating of either 1 or 5AAC.

Universal Web Platform **UWP 3.0**	Data-logging System **VMUC-EM**	Accessories for **VMU-D, VMU-M,**	Pulse Counter **VMU-MC & VMU-OC**	Server Software **EM2 Server**

The **UWP 3.0** is a monitoring gateway and controller that allows the monitoring and controlling of installations where Energy Efficiency Management, Building Automation, and Car Park Guidance functions are needed. The **UWP 3.0** can manage the complete lighting control system based on DALI actuators, and it can operate as a BACnet/IP gateway.

The **VMU-C EM** is a modular system that records, monitors and transmits analog and digital signals with a specific focus on energy efficiency. The system includes a web server used to set up and monitor the system. Furthermore, data can be transmitted using various protocols such as FTP, HTTP, and Modbus TCP/IP. Microsoft Azure Certified for IoT.

The **VMU-D** is an accessory module that provides reliable and cost-effective way to connect the VMU-C EM to the Internet by using mobile networks via dongle 3G modem. The **VMU-M** master module controls; **VMU-O** a module that manages two digital inputs and two relay outputs, and **VMU-P,** a module that manages environmental variables.

The **VMU-MC** is a pulse concentrator that makes totalizers available to master systems such as **VMU-C EM**. Furthermore, it controls up to three **VMU-OC** accessory modules via local bus to integrate from 2 to a maximum of 11 digital inputs. Each **VMU-MC** has two digital inputs, while the **VMU-OC** offers three digital

The **Em2 Server** software installed on a VMware server manages distributed installations. Each remote location is equipped with one **VMU-C EM** unit that is in charge of gathering data from connected devices, and transmitting it to the central **Em2 Server**. Such architecture centralizes the database and web-server access for up to 20 locations per license.

Energy Meters & Transducers for DIN Rail Mounting

Power quality and accurate measurements are becoming more and more important in a number of applications (hospitals, heavy and big industries, etc.). Utilities need an instrument with a high accuracy to monitor the distribution system or the generation plants. Carlo Gavazzi offers a broad range of power transducers that give early warning of power quality problems.

Real time power consumption monitoring allows overloads to be anticipated. In commercial buildings and production facilities, cost allocation and load control are becoming more and more important because of the need to save money or issue the energy bill when needed. In airports and infrastructures it is of fundamental importance to have a powerful control of the mains, since medium voltage systems and very high currents are involved.

1-Ph Energy Meter **EM10 & EM11**	3-Ph Energy Analyzer **EM210AV & MV**	2x3-Ph Power Analyzer **EM270, TCD0W & ..X**	2x3-Ph Power Analyzer **EM271 & TCD..M**	2x3-Ph Power Analyzer **ET272 & TCD..M**

EM110 is a simple, single phase energy meter with electro-mechanical data display, while **EM111** is a data analyzer with LCD, touch-screen display and optional RS485 Modbus communication. Both devices can measure up to 45AAC, at 276VAC without a need for external current transformers.

3-phase **EM210** energy analyzer with removable front LCD display. Can be used as a panel or DIN rail meter or transducer. Current measurements are carried out by means of external 5A (CTD), 333mV (**CTV**), or ROG4K (Rogowski coil) current transformers. Pulse output or RS485 port are available. Max. voltage rating of 415 V_{LL} AC.

Multi-circuit power analyzer for up to 6 single or 2-three phase systems that is installable on panels or DIN rails. Manages current input via two TCD current transformer blocks. The **EM270** is equipped with a removable **LCD** display. RS485 port or pulse outputs are optional. Max. voltage rating of 415 V_{LL} AC.

Multi-load power analyzer for 6 single or 2 three-phase systems installable on panels or DIN rails. Manages current input via two groups of TCD..M split-core current sensors connected with **RJ-11** connectors. The **EM271** is equipped with a removable LCD display, RS485 port, and optional dual pulse outputs. Max. voltage rating of 415 V_{LL} AC.

Multi-load power analyzer for single or three-phase systems installable on DIN rails. Manages current input via one or two groups of **TCD..M** split-core current sensors. The **ET272** is equipped with two RS485 ports for daisy chain connections. Designed for high-volume deployment. Max. voltage rating of 415 V_{LL} AC.

2x3-Ph Power Analyzer **EM280 & TCD..B**	2x3-Ph Power Analyzer **EM330 & ET330**	3-Ph Energy Analyzer **EM24**	1-Ph Power Analyzer **CPA**	Power Transducers **CPT**

Multi-channel power analyzer for up to 6 single or 2 three-phase systems installable on panels or DIN rails. Manages current input up to 32AAC via a 6-channel CT block (**TCD06BS** or **TCD06BX**) connected with RJ-11 connectors. The **EM280** is equipped with a removable LCD display. Max. voltage rating of 415 V_{LL} AC.

The **EM330** energy meter and the **ET330** energy transducer are designed for active energy metering and for cost allocation. Housing for DIN-rail mounting. The transducer is provided with RS485 Both require external 5AAC CTD current transformers. Max. voltage rating of 480 V_{LL} AC.

Three-phase energy analyzer for DIN-rail mounting with LCD display and configuration joystick. The **EM24** requires 5A CTD current transformers. It can be equipped with 2 digital outputs or 3 digital inputs (pulse counting). Communication options include Modbus RTU or Modbus TCP/IP Ethernet. Max. voltage rating of 690 V_{LL} AC on some models.

The **CPA** is a family of power analyzers and current transducers for ac 1-phase or dc installation monitoring. Current is measured via a built-in transformer, while voltage measurement requires a wired connection. The **CPA** is rated up to 300AAC / 400ADC and 800VAC / 1000VDC. RS485 Modbus in the standard.

3-phase compact power transducer for the measurement of the main electrical variables also on board machines. Housing for DIN-rail mounting, with up to 3 analog outputs, RS485 communication port alarm outputs or "Dupline" bus. Max. voltage rating of 800 V_{LL} AC.

CARLO GAVAZZI Automation Components. Specifications are subject to change without notice. Visit Gavazzi*Online*.com for more details.

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Digital Panel Meters & PID Controllers

Carlo Gavazzi offers a comprehensive range of digital panel meters which measure voltage, current, frequency, temperature resistance and rate.

The UDM modular family provides unique flexibility and advanced solutions using 3.5 and 4.0 digit display configurations. These products are used in all types of process industries, as well as agriculture, plastics, food & beverage, packaging and other industries. The UDM front housing is rated IP67, NEMA12 and NEMA4X.

Additionally, PID Controllers are offered for the plastics, packaging, processing and other industries.

For more detailed information, visit: www.Gavazzi*Online*.com/PanelMeters

Volt/Amp Indicators **DI3-72**	Volt/Amp Indicators **LDM30**	Volt/Amp Controllers **LDM35 & LDM40**	Modular Controllers **UDM35**	Modular Controllers **UDM40**
72x72mm 1-phase AC/DC voltmeter and ammeter with 3-digit red LED display for panel mounting.	1/8 DIN 1-phase AC voltmeter and ammeter with 3-digit red LED display for panel mounting.	1/8 DIN **LDM35** features 3.5 digit display and **LDM40** features 4-digit display. Both are panel mounted AC/DC multi-signal controllers with up to two alarm set points.	1/8 DIN 3.5 digit 1-phase TRMS AC/DC and pulse multi-signal panel meter with plug-in modules for power supply, measuring inputs, serial communications, digital and analog outputs.	1/8 DIN 4-digit 1-phase TRMS AC/DC and pulse multi-signal panel meter with plug-in modules for power supply, measuring inputs, serial communications, digital and analog outputs. The multi-color display can be programmed to display up to three different colors.

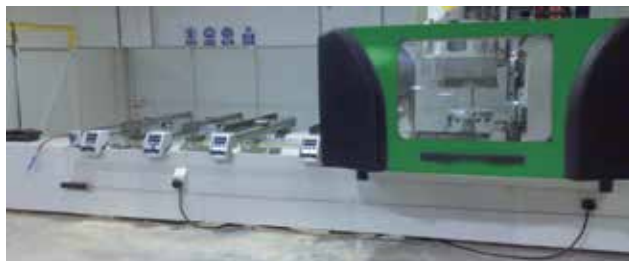| Signal Conditioners **USC**	PID Controllers **T2032 & T2016**
DIN-rail mount microprocessor-based signal conditioner for current, voltage, temperature, resistance, rate, frequency, speed and period measurements. Plug-in modules provide ease of installation.	1/32 DIN single line display PID controller **(T2032)**. AC or DC powered, universal inputs, pulsed DC, relay output(s), as well as serial communications. 1/16 DIN two-line display PID controller **(T2016)**. AC or DC powered, heat-cool operation and universal inputs. **T2016P** versions permit multiple ramp/soak modes.

Safety *Modules*

Carlo Gavazzi special purpose safety relay modules provide an internationally approved interface to specific safety related devices on a machine. Emergency Stop, Two-Hand Control, Safety Gate, and Elevator Leveling modules are suitable for applications up to Safety Category 4.

For larger and more complex safety installations, Carlo Gavazzi's CERTUS safety system supports up to 128 inputs and 16 pairs of programmable solid state outputs in a compact modular system. CERTUS provides robust versatile safety logic, enabling more flexibility than standard safety relay modules. The optional CERTUS Bus Transfer module allows the CERTUS system to be interconnected with up to six different remote locations. The CERTUS Data and Diagnostic module supports communication of critical data on a variety of popular industrial communication networks.

For more detailed information, visit: www.Gavazzi*Online*.com/
SafetyModules

Two-Hand Control **ND12D**	Emergency Stop **NES**	Safety Gate **NSO & NSC**	Elevator Leveling **NA12DLIFT**	Expansion Module **NE14D**

Special purpose safety relay module, designed for two-hand control in high risk applications, such as presses and punches. Provides up to Performance Level "e", and meets EN574 requirements up to Cat. IIIC.

Special purpose safety relay module, designed for Category 4 Emergency Stop applications. 2NO safety outputs (**NES02**), or 3NO safety + 1NC auxiliary (**NES13**). Automatic/manual version, and monitored manual reset version available.

Special purpose safety relay module, designed for safety gate and safety magnetic sensor applications. Meets EN60204-1, EN292-1/-2, EN418 and EN1088. Safety Category 4, Performance Level "e". Automatic/manual and monitored manual restart version available.

Special purpose safety relay module, designed for elevator door unlocking and elevator cabin leveling control, according to Lift Directive 95/16/CE and to safety circuits requirements of EN81-1, /-2, EN12015 and EN12016 Standards. Provides up to Safety Category 4.

Zero delay safety relay expansion module provides a simple means to increase the number of safety outputs on the various safety relay modules. Meets EN60204-1, EN202/1 and EN202/2, EN418, EN1088 and EN954-1. Includes a NC feedback output to control the internal force guided relay integrity.

Safety Controller **CERTUS**	Data & Diagnostics **CERTUS**	Speed Monitor **CERTUS**	Multifunction **CERTUS**	Expansion Module **CERTUS**

The CERTUS system consists of one CMM Master Control module and up to 14 Expansion I/O modules, providing up to 128 inputs and 16 output pairs. The **CBT** Bus Transfer module allows connection with up to six remote locations.

The CERTUS Data and Diagnostic module supports communication of critical data on a variety of popular industrial communication networks, including Profibus DP, DeviceNet, CANopen, Ethernet IP, EtherCAT, PROFINET, and USB.

The CERTUS Speed Monitor module provides monitoring and control of zero speed, maximum speed, speed range and direction. Up to 4 configurable speed thresholds for up to 2 outputs, for control of 2 independent axes.

The CERTUS Multifunction modules can be used with various types of inputs, including E-Stops, limit switches, non-contact switches, safety light curtains and safety mats. Various output relay configurations and time delay options available.

CERTUS I/O expansion modules work seamlessly with other CERTUS modules, allowing easy expansion of I/O points. Various combinations of inputs and outputs, and relay configurations, to fit any application.

CARLO GAVAZZI Automation Components. Specifications are subject to change without notice. Visit Gavazzi*Online*.com for more details.

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General Purpose Dupline® & DuplineSafe

Dupline® is a versatile bus for industrial, commercial and building automation, currently with more than 120,000 installations worldwide. It is used for transferring discrete and analog signals over distances up to 6.2 miles/10Km. The Dupline® range consists of general purpose fieldbus I/O modules and various types of connectivity gateways for PCs, PLCs, etc. The strength of the Dupline® system lies in a unique set of features allowing flexible and cost-effective solutions for a wide range of applications: factory process monitoring, railway systems and water distribution.

DuplineSafe offers a flexible and easy-to-wire solution complying with EN954-1 Cat 4 and at the same time, the the fast and precise diagnostic features reduce production stops in large machines and plants. It represents the ideal solution for long conveyor runs, where the immediate indication and diagnosis of causes for production stops enables significant downtime reduction.

For more detailed information, visit: www.GavazziOnline.com/Dupline

Channel Generator	Digital I/O	Analog I/O	Fieldbus Gateways	Repeaters

Generates Dupline signal carrier. Up to 128 Dupline channels. The maximum number of channels is selectable (8, 16, 24, 32, 40, 48, 56, 64, 96 or 128), thus increasing the fieldus reaction speed. AC or DC supply voltage and a 4-DIN housing.

Numerous digital input modules accepting contact and voltage signals, and receiver modules with relay, NPN and PNP outputs. Available in DIN-rail housings and compact, bus-powered housings for decentralized installations.

Input or output modules for 0-20mA, 4-20mA and 0-10VDC signals. Each device can handle four input or output signals. . Output modules are offered in DIN-rail housings and input modules are available in various compact, bus-powered housings for decentralized installations.

Fieldbus gateways are typically used for interfacing the Dupline bus to PLCs and PCs. Versions available for Profibus-DP, Modbus-RTU, Modbus/TCP and DeviceNet. Gateways also have an integrated channel generator, therefore a channel generator isn't required.

The Dupline repeater functions to regenerate the Dupline carrier signal in order to extend the bus up to another 10Km (6.2 miles). This category includes optical repeaters for sending the signals over fiber optic transmission cables.

DuplineSafe Safety Receiver	DuplineSafe Input Transmitter	DuplineSafe Gateway / Repeater	DuplineSafe Optical Converter	Programming and Test Units

Monitors up to 63 DuplineSafe inputs and is approved per IEC61508-SIL3

Completely bus-powered safety input has a voltage-free input and uses two Dupline channels for redundancy. Typically mounted by customers inside of a bulk cord or rope pull switch. Available in plug-in or pigtailed versions.

Passive gateway with safety mapping is DIN-rail mounted and reads and controls up to 128 inputs and outputs through Profibus-DP. Also offered is an isolated DuplineSafe repeater, for extending the transmission distance. These can be cascaded.

Optical repeaters allow part of the DuplineSafe system to run on multimode fiberoptics. Electrical to optical and optical to electrical devices.

The hand-held configuration unit for DuplineSafe quickly connects to, and programs the sensors and monitors. It features an LCD display and 12-key tactile keyboard, powered by a standard 9VDC battery. The more compact programming and test unit is for Dupline Industrial.

CARLO GAVAZZI
Automation Components

Dupline® Parking Guidance (Carpark) System

Carlo Gavazzi's innovative parking technology is built upon our extremely flexible and durable Dupline® Fieldbus. The system has been successfully deployed in approximately 200,000 tough applications, in industries such as off-shore oil drilling, rock quarries, and even to control the elevators on NASA launch pads. Carlo Gavazzi brings two of its core competencies together, sensors and the Dupline® fieldbus, to provide the most robust system available today to withstand the harsh environments of parking garages/carparks.

The Dupline® Carpark 3 is a complete solution for guiding drivers as quickly and directly to vacant parking bays. We offer single space, count-by-level, and zone counting solutions. Displays with green arrows and digits indicate which direction to drive and show how many parking spaces are available in any specific area. Once in the area, the vacant bays are easily spotted by looking above the spaces for bright green LED lights. It is a system of high precision, because each parking space has an ultrasonic sensor that detects and indicates occupancy.

For more detailed information, visit: www.GavazziOnline.com/Parking

45° Ultrasonic Sensors	Vertical Ultrasonic Sensors	Vertical Ultrasonic Counting Sensors	360° LED Indicator	Base Holders

Ultrasonic sensor with a 45° detection angle for mounting at the entry to the parking space. Built-in bright RGB LEDs with 360° indication of space status (multi-color). Base holders for cable tray, ceiling and pipe/tube/conduit mounting. Dupline® 3-wire bus-powered.

Vertical sensor to be mounted directly above the car. Built-in bright RGB LEDs with 360° indication of space status (multi- color). Base holders for cable tray, ceiling and pipe/tube/conduit mounting. Dupline® 3-wire bus-powered.

Vertical sensor to be mounted in the driving lane for counting. Built-in bright RGB LEDs with 360° indication of space status (multi- color). Base holders for cable tray, ceiling and pipe/tube/conduit mounting. Dupline® 3-wire bus-powered.

LED indicator to be mounted outside the parking space. Built-in bright RGB LEDs with 360°. indication of space status (multi- color). Base holders for cable tray, ceiling and pipe/tube/conduit mounting. Dupline® 3-wire bus-powered.

Base holders for Carpark sensors and LED indicators. To be mounted either on rail, ceiling or pipe/tube/conduit. Ø116 x 24 mm (Type A); Ø116 x 44 mm (Type B). Wire terminals built into base holder for easy change of sensor. On-board address chip with SIN code.

Carpark Master Generator	Carpark Controller	Carpark Server	Carpark Display Interface	Displays

Generator of power and Dupline® bus communication on 3 wires. Connected as a slave to the Carpark controller SBP2WEB24. Connects up to 90 Carpark sensors via Dupline® 3-wire bus.

Parking guidance, booking, carpark management, smart building, data logger and energy monitoring in one controller. Protocols: BACnet, Modbus TCP/IP and RTU, HTTP/S, FTP/S, Data Push, SMTP, NTP, MQTT, Rest API. Built-in webserver with user interface for carpark management software

Carpark server with capability of linking up to 10 SBP2WEB24 together in larger systems. Built-in webserver with user interface for carpark management software. Data export in excel format.

Interface between the Dupline® bus and display. RS485 serial connection to the display. LEDs for indication of communication status.

Carlo Gavazzi has partnerships with many reputable sign and monument sign manufacturers across the Americas. We have a reference guide of parking guidance installations and pictures available upon request.

CARLO GAVAZZI Automation Components. Specifications are subject to change without notice. Visit GavazziOnline.com for more details.

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Notes:

GAVAZZI APP

CARLO GAVAZZI offers a free, information laden app for your Apple and Android mobile devices.

As we all strive to share knowledge in a more efficient method, this provides you with the ability to view or email brochures, data sheets or manuals from your 'smart device'. Users can also see the available inventory and pricing in seconds.

CARLO GAVAZZI Automation Components. Specifications are subject to change without notice. Visit GavazziOnline.com for more details.

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The Complete Product Package

Sensors
Inductive Proximity Sensors
Capacitive Proximity Sensors
Photoelectric Sensors
Magnetic Sensors
Optical & Conductive Level Sensors
Ultrasonic, Motion, Presence & Wind Sensors
IO-Link Sensors & Accessories

Switches
Solid State Relays & Contactors
Contactors, Overloads & Manual Motor Starters
Circuit & Motor Protection Devices
Solid State Motor Controllers
Industrial Relays & Sockets
Limit Switches
Push Buttons & Pilot Lights

Controls
Monitoring Relays
Power Supplies
Timers
Energy Meters, Data Loggers & Transducers
Digital Panel Meters & PID Controllers
General Purpose Dupline® & DuplineSafe
Dupline® Parking Guidance (Carpark) System

A Global Force in Industrial and Building Automation

CARLO GAVAZZI has a multitude of sales offices spanning the Americas *(not to mention, hundreds of distributors)*. Therefore, we can be viewed as *"your local automation resource,"* assisting you every step of the way in finding the proper solution for your various application requirements.

Naturally, our job is simplified as we have such a vast range of solutions to offer you via our comprehensive *product package.*

Our worldwide sales offices make us an ideal business partner, *especially for manufacturers of exported machinery*, as our products are available locally and they are RoHS and CE marked.

Customers and distributors across the globe: Argentina, Australia, Austria, Belgium, Bolivia, Bosnia, Brazil, Bulgaria, Canada, Chile, China, Colombia, Costa Rica, Czech Republic, Croatia, Denmark, Dominican Republic, Ecuador, Egypt, El Salvador, Estonia, Finland, France, Germany, Greece, Guatemala, Honduras, Hungary, Hong Kong, Iceland, India, Indonesia, Iran, Ireland, Italy, Jamaica, Japan, Jordan, Kenya, Korea, Kuwait, Lebanon, Malaysia, Malta, Mexico, Netherlands, New Zealand, Nicaragua, Norway, Pakistan, Panama, Paraguay, Peru, Philippines, Poland, Portugal, Puerto Rico, Romania, Russia, Saudi Arabia, Serbia, Singapore, Slovakia, Slovenia, South Africa, Spain, Sultanate of Oman, Sweden, Switzerland, Taiwan, Thailand, Tunisia, Turkey, Trinidad and Tobago, Ukraine, United Arab Emirates, United Kingdom, Uruguay, United States, Venezuela, Vietnam, and many more countries.

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