



CARLO GAVAZZI

Product Overview

Who we are

Carlo Gavazzi is an international group active in designing, manufacturing, and marketing electronic equipment. Automation Components is the core business operated by Carlo Gavazzi Group.

Automation Components designs and manufactures electronic control components for the global building and industrial automation markets in its ISO 9001 and ISO 14001 certified factories in Italy, Lithuania, Malta and China.

The products (sensors, solid state relays, energy meters, energy management systems, monitoring relays, soft starters, timers, safety devices and fieldbus systems) provide automation solutions for the industrial and building automation markets.

Typical customers are original equipment manufacturers of EV Charging Stations, PV Energy Storage Systems, Food and Beverage, Semiconductors, HVAC, Mobile Equipment, Agriculture, Plastic Machinery, Access Controls, Energy and Building Efficiency, Data Centers, Conveyors.

System integrators and distributors are other effective channels to the market.

The products are marketed across Europe, America, and Asia-Pacific through a network of 22 own sales companies and around 60 independent national distributors.



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Photoelectric sensors

Carlo Gavazzi offers a wide range of photoelectric sensors designed to be used extensively in applications such as material handling, packaging machinery, automatic door systems, etc. A variety of sensing principles are covered, to fit the requirements of virtually any application: diffuse-reflective (D), background suppression (B), retro-reflective (R) with or without polarization (P), for transparent objects (G), and through-beam (T).

The sensors featuring IP69K ratings and ECOLAB approvals are designed for harsh environments.

Stand alone through beam	M18 PA18	PH18	Miniaturised PD30
			
- Supply voltage: DC 3-wire - Sensing distance: < 20 m - Output: NPN/PNP - NO/NC - Connectivity: cable or pig-tail - Housing: PC, IP67 - Features: sensor mute input, T type - Approvals: CE - cULus	- Supply voltage: DC 4-wire - Sensing distance: < 20 m - Output: NPN/PNP NO+NC - Connectivity: cable or M12 connector - Housing: PBTP, IP67, IP68, IP69K - Sensor types: D, B, R, P and T - Approvals: CE - cULus - ECOLAB	- Supply voltage: DC 4-wire - Sensing distance: < 20 m - Output: NPN/PNP NO+NC - Connectivity: cable or M12 connectors - Housing: PBTP, IP67, IP68, IP69K - Sensor types: D, B, R, P and T - Approvals: CE - cULus - ECOLAB	- Supply voltage: DC 4-wire - Sensing distance: < 15 m - Output: NPN/PNP NO+NC - Connectivity: cable or M8 connectors - Housing: ABS; IP67 Stainless Steel; IP69K - Sensor types: D, B, R, P, G and T - Approvals: CE - cULus - ECOLAB
PD30 with IO-Link	LD30 ToF with IO-Link and infrared laser	Compact PC50	PM...
			
- Applications: Pattern Recognition, Speed & Length detection, Divider function, Object and Gap Monitoring - Time Delays, Logic Functions - Outputs: NPN, PNP, Push-Pull, External inputs - Diagnostic function: QoT, QoR, Dust & Temp. Alarm, Operation hours, Power & Detection cycles, Max. and Min. Temp., Short-circuit, Maintenance, No of changes	- IO-Link Ver. 1.1 - BGS - Time of flight sensor - Time delay, ON, OFF, One shot - Logic: AND, OR, XOR, Gated SR-FF - Housing: ABS; IP67 Stainless Steel; IP69K - Output and diagnostic function: from PD30 with IO-Link	- Supply voltage: DC 4-wire, AC/DC 5-wire - Sensing distance: < 20 m - Output: NPN/PNP - NO+NC, SPDT 3 A - Connectivity: cable or M12 connector - Housing: ABS/PC, IP67 - Sensor types: D, B, R, P and T - Approvals: CE - UL - CSA	- Supply voltage: AC/DC 5-wire - Sensing distance: < 20 m - Output: SPDT 3 A - Connectivity: cable outlet, terminals - Housing: ABS/PC, IP67 - Sensor types: D, R, P and T - Approvals: CE - UL325 - UL508
Remote amplified sensors MOF...	PA18CL..	EO/ER/EP/ET18 NPB housing	Liquid level VP-sensor
			
- Supply from system: S142A, B or C - Sensing distance: < 50 m - Output from system: SPDT 10 A - Connectivity: 11 pin socket - Housing: syst. PPO, sens. PC IP67 - Sensor types: T, ATEX zone 22 - Approvals: CE - UL - CSA	- Supply voltage: AC 2-wire - Sensing distance: < 3 m - Output: AC 500 mA - Connectivity: cable or M12 connector - Housing: PBTP or NPB, IP67 - Features: D, R or P type - Approvals: CE - UL - CSA	- Supply voltage: DC 4-wire - Sensing distance: < 20 m - Output: NPN/PNP NO+NC - Connectivity: cable or M12 connector - Housing: NPB, IP67 - Sensor types: D, R, P and T - Approvals: CE - cULus	- Supply voltage: DC 3-wire, AC 2-wire - Sensing distance: direct contact - Output: NPN/PNP/NO/NC, AC NO/NC - Connectivity: cable or M12 connector - Housing: PA12, PSU, Glass, NPB, stainless steel, IP67 - Approvals: CE - UL - CSA

Photoelectric sensors

Carlo Gavazzi offers a comprehensive range of sensors for Doors, Gates and Entrances, all approved to meet the latest European and North American regulations.

The motion and presence sensors are based on vision technology and have been developed for straight or curved sliding pedestrian doors. They provide easy set-up, easy adjustment of the detection zone and a cross-walk elimination function.

Fork sensor PF74, for lifts	Automatic doors PD98	Automatic doors PD86	Automatic doors PD140
			
- Supply voltage: DC 3-wire - Slot width: < 30 mm - Output: NPN+PNP NO/NC - Connectivity: cable outlet - Housing: PC, IP65 - Features: High dust immunity, T type - Approvals: CE	- Supply voltage: AC/DC 5-wire - Sensing distance: < 30 m - Output: SPDT 1 A - Connectivity: cable outlet, terminals - Housing: PC/ABS, IP54 - Features: sensor mute input, T type - Approvals: CE - UL325	- Supply voltage: AC/DC 5-wire - Sensing distance: < 20 m - Output: SPDT 3 A - Connectivity: cable outlet, terminals - Housing: PC/ZAMAK, PMMA, IP66 - Features: sensor mute input, T type - Approvals: CE - UL325 - UL508	- Supply voltage: AC/DC 5-wire - Sensing distance: < 60 m - Output: SPST 1 A - Connectivity: cable outlet, terminals - Housing: Aluminium/PC, IP65 - Features: sensor mute input, T type - Approvals: CE - UL325, EN 12445, EN 12453, EN12978, EN/ISO 13849-1 ESPE2
Automatic doors PD180	Long range BGS PD112	Automatic doors wireless safety	Automatic gates wireless safety
			
- Supply voltage: AC/DC 5-wire, battery - Sensing distance: < 30 m - Output: SPST 1 A - Connectivity: cable outlet, terminals - Housing: PC, IP55 - Features: sensor mute input, T type - Approvals: CE - UL325, EN 12445, EN 12453, EN12978 - EN/ISO 13849-1 ESPE2	- Supply voltage: DC 4-wire - Sensing distance: < 2.5 m - Output: NPN/PNP NO+NC - Connectivity: cable or M12 connector - Housing: PC, IP67 - Features: B, industrial or door mode - Approvals: CE - cULus	- Supply voltage: AC/DC, battery - Wireless distance: < 10 m - Output: 3 x SPST, NO 8,2 or NC - Connectivity: cable outlet, terminals - Housing: ABS or PC or PA6, IP66/IP67 - Main- and sub-module, 2.4 GHz duplex - Approvals: CE - cULus - FCC	- Supply voltage: AC/DC, battery - Wireless distance: < 15 m - Output: 3 x SPST, NO 8,2 or NC - Connectivity: cable outlet, terminals - Housing: ABS or PC or PA6, IP66/IP67 - Main- and sub-module, 2.4 GHz duplex - Approvals: CE - cULus - FCC
Automatic doors MPF system	Automatic doors PD70	Reflectors	Mounting brackets AMB series
			
- Supply voltage: AC/DC or AC - Sensing distance: < 15 m - Output: 2 x SPST 0.5 A or 2 A - Connectivity: terminals - System: PC, IP40 sensor: PC+SS, IP67 - Features: sensor mute input, T type - Approvals: CE - UL325 - UL508 - TÜV	- Supply voltage: DC 3-wire - Sensing distance: < 12 m - Output: NPN/PNP - NO/NC - Connectivity: cable or M8 connector - Housing: PC, IP67 - Features: sensor mute input, T type - Approvals: CE - cULus	- High quality retro-reflectors - Housing shape: square or round - Round shape: Ø25 to Ø84 mm - Square shape: 13x17 to 100x100 mm - Mounting: adhesive or screws - Material: PMMA/ABS	- Bracket style: Straight or angled - Sensor size: Ø4, M8, M12, M18 or M30 - Bracket material: galvanized steel or stainless steel AISI316L or Nylon 66 plastic housing - Adjustability: ±32° - Head can be rotated 360°

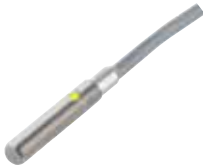
Capacitive sensors

Carlo Gavazzi is renowned for its TRIPLESIELD™ capacitive proximity sensors with outstanding electromagnetic immunity. The 4th Generation TRIPLESIELD™ sensors feature several significant upgrades, including superior electromagnetic immunity and refined sensitivity adjustment with stability indication and are now also available with on-board IO-Link communication. New benefits include a dust and temperature alarm function. Featuring an ECOLAB certified sensor housing rated to IP69K standard, these sensors are exceptionally well suited for a precise detection in environments subject to high temperatures, harsh chemicals, steam and high-pressure cleaning. The sensors are ideal for a wide range of applications that require reliable measurements or monitoring of solid materials or fluids.

M12 Tripleshield™	M18 and M30 Tripleshield™	CD34	CD46 Tripleshield™
			
• Supply voltage: DC 4-wire • Sensing distance: < 8 mm (F/NF) • Output: NPN/PNP - NO+NC • Connectivity: cable or M12 connector • Housing: PBT, IP67 • Features: high immunity to EMI • Approvals: CE - UL - CSA	• Supply voltage: AC 2-wire • Sensing distance M18: < 12 mm (F/NF) • Sensing distance M30: < 25 mm (F/NF) • Output: SCR NO+NC • Connectivity: cable or M12 connector • Housing: PBT, IP67 • Features: high immunity to EMI • Approvals: CE - UL - CSA	• Supply voltage: DC 4-wire • Sensing: water-based liquids • Output: NPN/PNP NO/NC • Connectivity: cable or M8 4-pin pig-tail • Housing: PBT, IP65, IP66, IP67, IP68, IP69K • Features: automatic tankwall suppression • Approvals: CE - cULus - ECOLAB	• Supply voltage: DC 4-wire • Sensing distance: < 10 mm (F/NF) • Output: NPN/PNP NO/NC, Teach • Connectivity: cable or M12 pig-tail • Housing: PBT, IP68 • Features: high immunity to EMI • Approvals: CE - UL - CSA
EC55 (VC55) Tripleshield™	CA18 and CA30 4th Gen. Tripleshield™	CA18 and CA30 with IO-Link 4th Gen. Tripleshield™	M18 Chemical resistant
			
• Supply voltage: DC 4-wire • Sensing distance: < 25 mm (F/NF) • Output: NPN/PNP NO+NC • Connectivity: cable or M12 pig-tail • Housing: PC, IP67 • Features: high immunity to EMI • Approvals: CE - UL - CSA	• Supply voltage: DC 4-wire • Sensing distance M18: < 15 mm (F/NF) • Sensing distance M30: < 30 mm (F/NF) • Output: NPN/PNP NO+NC • Connectivity: cable or M12 connector • Housing: PBT, IP67, IP68, IP69K • Features: superior immunity to EMI	• Additional specifications: from standard • IO-Link Ver. 1.1 • Time delay, ON, OFF, One shot • Logic: AND, OR, XOR, Gated SR-FF • External input • Outputs: NPN, PNP or Push-Pull • Diagnostic functions: Operation hours, Power cycles, Detection cycles, Temperatures, Short-circuit, Maintenance	• Supply voltage: DC 4-wire • Sensing distance: < 12 mm (F/NF) • Output: NPN/PNP NO+NC • Connectivity: cable • Housing: PP or PVC, IP67 • Features: high chemical resistance • Approvals: CE
CD50	Ø18 ATEX Zone 22	Ø32 VC11/12	Ø32 ATEX Zone 20
			
• Supply voltage: DC 4-wire • Sensing distance: < 10 mm (F) • Output: NPN/PNP NO/NC • Connectivity: cable • Housing: PPE-TPE, IP67 • Approvals: CE	• Supply voltage: DC 4-wire, AC 2-wire • Sensing distance: < 12 mm (NF) • Output: NPN/PNP NO+NC, SCR NO/NC • Connectivity: cable • Housing: PBT, IP67 • Features: fixed ON-delay 30 sec • Approvals: CE - UL - CSA - ATEX	• Supply voltage: AC/DC 5-wire, AC 5-wire • Sensing distance: < 20 mm (NF) • Output: SPDT 2 A • Connectivity: cable • Housing: PBT, IP67 • Features: adj. ON or OFF delay 600 sec • Approvals: CE - cULus (M24), ATEX	• Supply voltage: AC/DC 5-wire, AC 5-wire • Sensing distance: < 20 mm (NF) • Output: SPDT 2 A • Connectivity: cable • Housing: PBT, IP67 • Features: adj. ON or OFF delay 600 sec • Approvals: CE - ATEX

Inductive sensors

Carlo Gavazzi offers a broad range of inductive sensors, primarily used for reliable contactless detection of machine moving or rotating parts. These extremely accurate and robust sensors are used in packaging and plastics machines, conveyor systems, agriculture and mobile equipment. They are available in a wide variety of styles, including cylindrical housings (from 4 to 30 mm) with a sensing distance of up to 40 mm, flat pack, and 40 x 40 rotatable head. The ICS E1 series resists to high levels of shock and vibrations, wide temperature variations, voltage peaks of up to 200 V, high pressure and high temperature wash-down thanks to IP69K rating, and have an outstanding immunity to radiated noise of up to 200 V/m. The miniature series, from Ø4 to M8, can reach a frequency of up to 6 kHz and is also available with on-board IO-Link communication, as is the new ICB series, fully embracing the Industry 4.0 requirements.

Ø4	M5	Ø6.5	Ø4 - M5 - M8 with IO-Link
			
- Supply voltage: 3-w DC - Sensing distance: ≤ 1.3 mm (F) - Output: NPN/PNP - NO/NC - Connectivity: cable or M8 connector - Housing: stainless steel, IP67 - Special features: miniature series, operating frequency up to 6 kHz - Approvals: CE - UL - CSA	- Supply voltage: 3-w DC - Sensing distance: ≤ 1.3 mm (F) - Output: NPN/PNP - NO/NC - Connectivity: cable or M8 connector - Housing: stainless steel, IP67 - Special features: miniature series, operating frequency up to 6 kHz - Approvals: CE - UL - CSA	- Supply voltage: 3-w DC - Sensing distance: ≤ 4 mm (F/NF) - Output: NPN/PNP - NO/NC - Connectivity: cable, M8 connector or M12 connector (M8) - Housing: stainless steel, IP67 - Special features: miniature series - Approvals: CE - UL - CSA	- Additional specifications: from standard - IO-Link Ver. 1.1 - Time delay, ON, OFF, One shot - Outputs: configurable NO or NC; NPN, PNP or Push-Pull - Switching mode: single point, two point or window - Adjustable Sn and hysteresis - Revolution counter, rotational speed monitoring & temperature alarm
M12	M18	M30	M12 - M18 - M30 with IO-Link
			
- Supply voltage: 2-w, 3-w DC, Namur, 2-w AC - Sensing distance: ≤ 10 mm (F/QF/NF) - Output: NPN/PNP - NO/NC - Connectivity: cable or M12 connector - Housing: NPB, stainless steel, IP67 - Special features: complete range, short, long and extra-short body - Approvals: CE - UL - CSA	- Supply voltage: 2-w, 3-w DC, Namur, 2-w AC - Sensing distance: ≤ 20 mm (F/QF/NF) - Output: NPN/PNP - NO/NC - Connectivity: cable or M12 connector - Housing: NPB, stainless steel, IP67 - Special features: complete range, short or long body - Approvals: CE - UL - CSA	- Supply voltage: 2-w, 3-w DC, Namur, 2-w AC - Sensing distance: ≤ 40 mm (F/NF) - Output: NPN/PNP - NO/NC - Connectivity: cable or M12 connector - Housing: NPB, stainless steel, IP67 - Special features: complete range, short or long body - Approvals: CE - UL - CSA	- Additional specifications: from standard - IO-Link Ver. 1.1 - Time delay, ON, OFF, One shot - Outputs: configurable NO or NC; NPN, PNP or Push-Pull - Switching mode: single point, two point or window - Adjustable Sn and hysteresis - Revolution counter, rotational speed monitoring & temperature alarm
M12 - M18 - M30 E1	M12 - M18 - M30 Full metal	Rotatable head	Loop detector
			
- Supply voltage: 3-w DC - Sensing distance: ≤ 22 mm (F/NF) - Output: NPN/PNP - NO/NC - Connectivity: cable or M12 connector - Housing: stainless steel, IP67, IP68, IP69K - Special features: Mobile equipment applications, 8-60 VDC, Load dump protection, 200 V/m radiated immunity - Approvals: CE - cULus - E1	- Additional specifications: from IO-Link - Condition monitoring: Low margin alarm, Proximity alarm, Activation Level - Find my sensor function - Full metal face resistant up to 260 bar pressure for M12, 200 bar for M18 and 100 bar for M30 - Housing: stainless steel, IP67, IP68, IP69K - Approvals: CE - cULus - ECOLAB	- Supply voltage: 4-w DC - Sensing distance: ≤ 40 mm (F/NF) - Output: NPN/PNP - NO+NC - Connectivity: M12 connector - Housing: PBT, IP67, IP68, IP69K - Special features: rotatable sensing face, quick mounting system, 4 corner LEDs - Approvals: CE - cULus	- Supply voltage: 24-240 VAC/VDC, 12-36 VAC/VDC [LDP] - Input: 1 loop or dual loop - Output: 2 x SPDT, relay output - Mounting: plug [LDP], DIN-rail [LDD] - Special features: automatic sensitivity boost, automatic frequency tuning, fail safe/fail secure, advanced diagnostics - Approvals: CE - UL [LDP] - CSA [LDP] - cULus [LDD]

Ultrasonic sensors

The ultrasonic sensors from Carlo Gavazzi provide superior sensing solutions for a variety of industrial applications. The UA sensors are excellent for contactless position and distance measurement and are able to detect any sound reflecting targets regardless of colour, transparency or surface. Due to their resistance to temperature variations and immunity against dust, steam and fumes, these sensors are especially well suited to harsh environments. The sensors come in a two switching output version and a combined version with one switching and one analogue output. Thanks to improved technology, an extended sensing distance and a reduced housing length, these sensors provide a state-of-the-art sensor family with high accuracy, versatility and resilience.

M18 Short body PBT housing	M18 Short body stainless steel	M18 Switching output	M18 Analogue output
			
- Supply voltage: DC 4-wire - Sensing distance: 300 or 800 mm teach-by wire - Output: NPN/PNP - NO/NC - Output: analogue 4-20 mA/0-10 V - Connectivity: cable or M12 connector - Housing: PBT, IP67 - Features: switching, positive or negative slope - Approvals: CE - cULus	- Supply voltage: DC 4-wire - Sensing distance: 300 or 800 mm teach-by wire - Output: NPN/PNP - NO/NC - Output: analogue 4-20 mA/0-10 V - Connectivity: cable or M12 connector - Housing: AISI316L stainless steel, IP67 - Features: switching, positive or negative slope - Approvals: CE - cULus	- Supply voltage: DC 4-wire - Sensing distance: < 2.2 m teach-in - Output: NPN/PNP - NO+NC - Connectivity: cable or M12 connector - Housing: PBT, IP67 - Features: switching - Approvals: CE - cULus	- Supply voltage: DC 4-wire - Sensing distance: < 2.2 m teach-in - Output: analogue 4-20 mA/0-10 V - Connectivity: cable or M12 connector - Housing: PBT, IP67 - Features: positive or negative slope - Approvals: CE - cULus
M30 Switching output	M30 Analogue output	M18 Stainless steel	M18 Stainless steel
			
- Supply voltage: DC 4-wire - Sensing distance: < 3.5 m teach-in - Output: NPN/PNP - NO+NC, analogue - Connectivity: cable or M12 connector - Housing: PBT, IP67 - Features: switching - Approvals: CE - cULus	- Supply voltage: DC 4-wire - Sensing distance: < 2.2 m teach-in - Output: analogue 4-20 mA/0-10 V - Connectivity: cable or M12 connector - Housing: PBT, IP67 - Features: positive or negative slope - Approvals: CE - cULus	- Supply voltage: DC 4-wire - Sensing distance: < 2.2 m teach-in - Output: NPN/PNP - NO+NC - Connectivity: cable or M12 connector - Housing: AISI316L stainless steel, IP67 - Features: switching - Approvals: CE - cULus	- Supply voltage: DC 4-wire - Sensing distance: < 2.2 m teach-in - Output: analogue 4-20 mA/0-10 V - Connectivity: cable or M12 connector - Housing: AISI316L stainless steel, IP67 - Features: positive or negative slope - Approvals: CE - cULus
M30 Stainless steel	M30 Stainless steel	M12 Stainless steel	M30 (Ø39 mm)
			
- Supply voltage: DC 4-wire - Sensing distance: < 3.5 m teach-in - Output: NPN/PNP - NO+NC, analogue - Connectivity: cable or M12 connector - Housing: AISI316L stainless steel, IP67 - Features: switching - Approvals: CE - cULus	- Supply voltage: DC 4-wire - Sensing distance: < 2.2 m teach-in - Output: analogue 4-20 mA/0-10 V - Connectivity: cable or M12 connector - Housing: AISI316L stainless steel, IP67 - Features: positive or negative slope - Approvals: CE - cULus	- Supply voltage: DC 4-wire - Sensing distance: < 400 mm teach-in - Output: NPN/PNP NO/NC - Connectivity: cable or M12 pig-tail - Housing: stainless steel, IP67 - Features: switching, 4-20 mA/0-10 V - Approvals: CE	- Supply voltage: DC 4-wire - Sensing distance: < 3.5 m teach-in - Output: NPN/PNP - NO+NC, analogue - Connectivity: cable or M12 connector - Housing: PBT, IP67 - Features: switching, 4-20 mA/0-10 V - Approvals: CE - cULus

Magnetic sensors

Carlo Gavazzi offers a comprehensive range of proximity magnetic sensors to be used in detection applications. They are employed in conjunction with an external magnet: when the sensor approaches the magnet, the output from the sensor changes the status. There is a wide variety of styles available including rectangular, cylindrical and slotted. Safety magnetic sensors with special coded magnets are available in compact or standard rectangular housings, the ideal solution to monitor sliding, hinged and removable safety guards. Magnetic sensors are frequently used for elevators and lifts, gate control, level detection and access control. Some proximity and level sensors are certified for use in explosive environments (ATEX).

Ø 6	Ø 13,5	M8	M10
			
- Max. switch. power contact: 10 VA - Operating distance: > 8 mm - Output: NO - Connectivity: 0.5 m twin lead cable - Housing: plastic, IP67 - Special features: cylindrical series - Approvals: CE	- Max. switch. power contact: up to 120 VA - Operating distance: 3 - 12 mm - Output: NO, NC, CO - Connectivity: 0.5 m PVC cable - Housing: plastic, IP67 - Special feature: cylindrical series - Approvals: CE	- Max. switch. power contact: up to 10 VA - Operating distance: 8 - 28 mm - Output: NO, CO - Connectivity: 2 m PVC cable - Housing: stainless steel or NPB, IP67 - Special feature: cylindrical series - Approvals: CE	- Max. switch. power contact: up to 120 VA - Operating distance: 7 - 36 mm - Output: NO, CO - Connectivity: 2 m PVC cable - Housing: brass or NPB, IP67 - Special feature: cylindrical series - Approvals: CE
M12	M16	Flat type	Level (inox)
			
- Max. switch. power contact: up to 120 VA - Operating distance: 2 - 20 mm - Output: NO, NC, CO, bistable - Connectivity: 2 m PVC cable or 2 m silicone cable - Housing: brass, NPB, plastic, IP67 - Special feature: includes a special family for elevators - Approvals: CE	- Max. switch. power contact: up to 100 VA - Operating distance: 5 - 32 mm - Output: CO, Bistable - Connectivity: 2 m PVC cable or 0.5 m silicone cable - Housing: brass, plastic, IP67 - Special features: includes a special family up to 150°C - Approvals: CE	- Max. switch. power contact: up to 120 VA - Operating distance: 5 - 40 mm - Output: NO, NC, CO, bistable - Connectivity: PVC cable, pig tail, twin lead cable - Housing: plastic, IP67 - Special features: includes a family with 2xNC outputs - Approvals: CE	- Max. switch. power contact: up to 120 VA - Float diameter: Ø 28, Ø 53 - Output: NO, NC, CO, NO/NC - Connectivity: silicone cable, XLPE cable - Housing: stainless steel, IP67, IP68 - Special feature: includes a family up to 200°C - Approvals: CE
Level (plastic)	ATEX	Safety sensors (standard)	Safety sensors (compact)
			
- Max. switch. power contact: up to 120 VA - Float diameter: Ø 25, 17.5, 31, 44, 45 mm - Output: NO, CO, NO/NC - Connectivity: PVC cable, silicone cable, XLPE cable - Housing: plastic, IP67, IP68 - Special feature: possibility to reverse the output function - Approvals: CE	- Max. switch. power contact: up to 100 VA - Operating distance: 8 - 35 mm - Output: NO, NC, CO - Connectivity: silicone, HF PUR, PVC cable - Housing: stainless steel, self-ext. plastic, IP66, IP67 - Special features: Category 2G, 2D or 1G, 1D - Approvals: CE - TUV Sud	- Max. switch. power contact: 6 W - Operating distance (Sao): 5 mm, 8 mm, 18 mm depending on actuator - Output: 2 NO, 1 NO + 1 NC, 2 NO + 1 NC - Connectivity: PVC cable, M8-plug, pig-tail with M12 connector - Housing: rectangular, plastic, IP67, IP69K [Plug version without LED] - Approvals: CE - cULus	- Max. switch. power contact: 6 W - Operating distance (Sao): 5 mm - Output: 2 NO, 1 NO + 1 NC, 2 NO + 1 NC - Connectivity: PVC cable, M8-plug - Housing: rectangular, plastic, IP67, IP69K [Plug version without LED] - Special features: compact dimensions, left or right exit, with or without LED - Approvals: CE - cULus

Connectivity, industrial networking and wind sensors

To support its wide range of sensors, Carlo Gavazzi also offers a number of accessories and connectors for all market needs, that are characterized by high quality standards. The SCTL55 is the Industry 4.0 portable and user-friendly configurator for IO-Link sensors, providing simple configuration, monitoring and advanced diagnostic data. Y-series IO-Link masters allow connection of up to 8 smart devices to the higher-level control system and support EtherNet/IP™, PROFINET IO, and MODBUS TCP. Thanks to the integrated web server and IODD interpreter it is easy to configure and access diagnostic information via a web browser, also remotely from PC or tablets. Wind sensors are designed for measuring wind direction and wind speed in a wide variety of applications including wind turbines, cranes, weather stations and solar panels.

YN Series IO-Link masters	YL Series IO-Link masters	SCTL55 Smart configurator	CONE1 Straight and Angled
			
- DIN rail fieldbus module - IO-Link v1.1 and v1.0 - Integrated web server accessible via browser 8 IO-Link outputs, 2 Ethernet ports - EtherNet/IP™ or PROFINET IO, Modbus TCP - OPC UA support - Pluggable push-in and screw terminal connectors - Approvals: CE - UL - FCC	- Machine mount fieldbus module - IO-Link v1.1 and v1.0 - Integrated web server accessible via browser 8 IO-Link outputs, 2 Ethernet ports - EtherNet/IP™ or PROFINET IO, Modbus TCP - M12 connectors - OPC UA support - Approvals: CE - UL - FCC	- Handheld device for easy monitoring, diagnostics, configuration and cloning of IO-Link sensors - IO-Link v1.1 5.5" HD touch screen display - Automatic IODD file download via Wi-Fi - High capacity rechargeable battery - M8 3-wire, M8 4-wire and M12 connectors - Approvals: CE - FCC - IC	- M12 connector - Straight version [-S..] - Angled version [-A..] 2/5 m cable length 3/4/5 wire DC version - UL approval - IP67 rating - PVC cable or PUR cable on request
CONE5 Straight and Angled	CONH6 Straight and Angled	CONE14NF-S/-A Connector only	DWS-D Wind direction
			
- M8 connector - Straight version [-S..] - Angled version [-A..] 2/5 m cable length 3 or 4 wire DC version - UL approval - IP67 rating - PVC cable or PUR cable on request	- M12 connector - Straight version [-S..] - Angled version [-A..] 2 or 5 m cable length 2 wire AC version - IP67 rating - PVC cable	- M12 connector only - Straight version [CONE14NF-S] - Angled version [CONE14NF-A] - Field-wireable 4 wire version - IP67 rating	- Wind vane - Measures wind direction 0° to 360° measurement 90° measurement interval - PNP or NPN output -20°C to +60°C - IP54 rating - Built-in heater, High ESD protection
DWS-V Wind speed	DWS-V-AGP Wind speed		
			
- Anemometer - Measures wind speed 2 to 30 m/s - PNP or NPN output - PVC cable connection -20°C to +60°C - IP54 rating - Built-in heater, High ESD protection	- Anemometer, 4-20 mA output - Measures wind speed 2 to 50 m/s - PNP or NPN output - M16 plug -20°C to +60°C - IP54 rating - Built-in heater, High ESD protection		

Level sensors

The Carlo Gavazzi range of conductive level sensors is well suited to most level control applications. The new CL-series of intelligent conductive level controllers is used for conductive liquid level monitoring and pump controlling. CLH models with a flexible conductive level probe can accommodate up to five rods for four different levels of control. Operating levels in the tank can easily be modified by extending or cutting short the length of the electrodes. The typical applications of conductive sensors are level control and flow detection in agriculture, the chemical sector, food and beverage, water distribution and water treatment industries.

CLD 1	CLD 2EB	CLP 2EB	CLP2 Plug-in
			
• 5 kΩ to 150 kΩ • Filling or emptying • 17.5 mm width slim housing • ON or OFF delay timer • 1 X 8 A / 250 VAC output	• 250 Ω to 500 kΩ • Filling or emptying • 17.5 mm width slim housing • 24-240 VAC/DC supply • 1 X 8 A / 250 VAC output	• 5 kΩ to 150 kΩ • Filling or emptying • 35.5 mm width housing • Simple amplifier • 1 X 8 A / 250 VAC output	• 250 Ω to 500 kΩ • Filling or emptying • 35.5 mm width housing • 3 conductive ranges (L/S/H) • 2 X 8 A / 250 VAC output
CLD2 DIN-rail	CLP2 Master-Slave	CLP4 Plug-in	CLD4 DIN-rail
			
• 250 Ω to 500 kΩ • Filling or emptying • 35.5 mm width housing • 3 conductive ranges (L/S/H) • 2 X 8 A / 250 VAC output	• 250 Ω to 500 kΩ • Filling or emptying • Cascade up to 7 amplifiers • Many different levels • 1 X 8 A / 250 VAC output	• 250 Ω to 500 kΩ • Many different functions • Up to 4 levels • Tank well function • 2 X 8 A / 250 VAC output	• 250 Ω to 500 kΩ • Many different functions • Up to 4 levels • Tank well function • 2 X 8 A / 250 VAC output
CLH	VN/VT	VH	A94-10
			
• 3 or 5 electrodes • Standard 1 m length • Length can be extended • Electrode isolation • Flexibility	• Up to 4 electrodes • Standard 1 m length • Stainless steel electrodes • Electrode isolation • Different housing materials	• 1 electrode • Level hanging probe • UV resistant PVC or Neoprene cable • Stainless steel electrodes • Suitable for swimming pools	• 2 electrodes • Level hanging probe • 5 m PVC cable • Polyester housing • Suitable for swimming pools

Limit switches and Safety switches

Carlo Gavazzi offers a complete range of limit and safety switches, providing machine manufacturers and panel builders with global and exhaustive solutions which allow machinery to operate correctly, minimizing process stops and personnel risk. Switches may be operated by process variables such as pressure, temperature, flow, current, voltage and force, acting as sensors in a process and used to automatically control a system.

PS21L 30 mm series	PS31L 40 mm series	PS42L 50 mm series	PS43L 60 mm series
			
• Plastic or Metal housing • 1 NO + 1 NC, 2 NO or 2 NC contacts, snap or slow action • Selectable actuator type • Selectable cable gland or pre-wired M12 plug connection • IP65 or IP66 degree of protection	• Plastic or Metal housing • 1 NO + 1 NC, 1 NO + 2 NC, 2 NO + 1 NC, 2 NO, 2 NC, 3 NO or 3 NC contacts, snap or slow action • Selectable actuator type • Selectable cable gland or pre-wired M12 plug connection • IP65 or IP66 degree of protection	• Plastic or Metal housing • 1 NO + 1 NC, 2 NO or 2 NC contacts, snap or slow action • Selectable actuator type • Selectable cable gland connection • IP65 or IP66 degree of protection	• Metal housing • 1 NO + 1 NC, 1 NO + 2 NC, 2 NO + 1 NC, 2 NO, 2 NC, 3 NO or 3 NC contacts, snap or slow action • Selectable actuator type • Selectable cable gland connection • IP65 or IP66 degree of protection
PS21M/PS31M prewired series	PS21K with manual reset	PS38H safety hinge	ESI safety interlock
			
• Plastic or Metal housing • 1 NO + 1 NC, snap or slow action • Selectable actuator type • Prewired 1m PVC cable • IP67 degree of protection	• Plastic or Metal housing • 1 NO + 1 NC or 2 NC contacts, snap or slow action • Selectable actuator type • Selectable cable gland connection • IP65 or IP66 degree of protection	• Plastic housing • 2 NO + 2 NC or 1 NO + 3 NC contacts, snap or slow action • Interlock type 1 as per EN14119 • M12 plug or cable connection • IP67 degree of protection	• Plastic housing • 1 NO + 1 NC (coil) + 1 NC (actuator), 1 NO + 1 NC (coil) + 1 NO (actuator), 2 NC (coil) + 1 NO + 1 NC (actuator) • Interlock type 2 as per EN14119 • Adjustable head for key actuator • IP65 degree of protection
PS21S/31S/42S/43S actuated by key	PS21R/31R/42R/43R actuated by pull wire	PS21H-HC actuated by hinge	PS21H-HZ actuated by hinge
			
• Plastic or Metal housing • 1 NO + 1 NC, 1 NO + 2 NC, 2 NO + 1 NC, 2 NO, 2 NC, 3 NO or 3 NC contacts, snap or slow action • Selectable actuating key; optional adjustable key • Selectable cable gland connection • IP65 or IP66 degree of protection	• Metal housing • 1 NO + 1 NC, 1 NO + 2 NC, 2 NO + 1 NC, 2 NO, 2 NC, 3 NO or 3 NC contacts, snap or slow action • Manual or automatic reset • Selectable cable gland connection • IP66 degree of protection	• Plastic housing • 1 NO + 1 NC, 2 NO or 2 NC contacts, snap or slow action • Operated by hinge • Selectable cable gland connection • IP65 degree of protection	• Plastic housing • 1 NO + 1 NC, 2 NO or 2 NC contacts, snap or slow action • Operated by hinged shaft • Selectable cable gland connection • IP65 degree of protection

Solid state relays

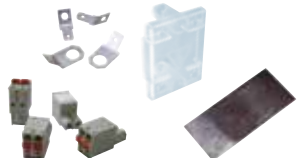
Carlo Gavazzi offers a comprehensive range of solid state relays (SSRs) covering AC and DC switching, 1-phase and 3-phase, suited for a wide range of applications. SSRs are used extensively in the plastics, packaging, food processing, semiconductor manufacturing and HVAC industries primarily for temperature control. Thanks to their fast switching capability, SSRs are the most reliable switching components for process accuracy. Over the years, SSRs have become the preferred switching solution compared to mechanical contactors as they can perform a very large number of switching cycles without breaking down. This ensures low machine downtime and hence lower running costs.

PCB mounting RP1A, RP1D	1-phase SSR RF1	1-phase SSR RA	1-phase SSR RM1, RAM1
			
• AC or DC output switching • Zero Cross [RP1A], Instant On [RP1B] or DC [RP1D] • Ratings up to 480 VAC, 5.5 AAC [RP1A/B] • Ratings 350 VDC / 1 ADC, 60 VDC / 8 ADC [RP1D] • Approvals: CE - cURus - VDE - [RP1A/B] - EAC - UKCA	• Zero Cross [RF1A] or Instant On [RF1B] switching • Ratings up to 280 VAC, 25 AAC • Integrated transil for output protection • Control ON LED • Approvals: CE - UR - CSA - VDE - EAC - UKCA	• Zero Cross output switching • Ratings up to 660 VAC, 110 AAC, 18000 A²s • High blocking voltage option • Control ON LED • Approvals: CE - UR - CSA - EAC - UKCA	• Zero Cross [RM1A/RAM1A] or Instant On [RM1B/RAM1B] switching • Ratings up to 759 VAC, 125 AAC, 18000 A²s • Integrated varistor for output protection • Control ON LED • Approvals: CE - UR - CSA - CCC - EAC - UKCA - VDE [RAM1]
2-pole SSR RA2A	2-pole SSR RKD2, RK2	3-phase SSR RZ3A	DC SSR RM1D
			
• 2-poles in 1 housing, independent control • Ratings up to 660 VAC, 40 AAC per pole • Zero Cross switching • DC control voltage • Approvals: CE - UR - EAC - UKCA - CSA (excl. RA2A..C)	• 2-poles in 1 housing, independent control [RKD2] or common control [RK2] • Ratings up to 660 VAC, 75 AAC per pole, 9800 A²s • Zero Cross or Instant On switching • DC control voltage • Approvals: CE - UR - CSA - VDE - EAC - UKCA	• 3-phase Zero Cross switching • Suitable for resistive and inductive loads • Ratings up to 759 VAC, 75 AAC • Control ON LED • Approvals: CE - UR - CSA - EAC - UKCA	• DC switching • Ratings up to 100 A / 60 VDC, up to 50 A / 200 VDC, up to 10 A / 500 VDC • DC control voltage • Control ON LED • Approvals: CE - UR - CSA - EAC - UKCA
Slim line SSR RGS1	Slim line SS contactors RGC1	Slim line SS contactors RGH1	3-phase SS contactors RGC2A, RGC3A
			
• Compact, 17.5 mm wide • Zero Cross [RGS1A] or Instant On [RGS1B] switching • Ratings up to 759 VAC, 90 AAC, 18000 A²s • AC or DC control • Approvals: CE - UR - CSA - VDE - EAC - UKCA - GL (50 AAC only)	• Min. product width 17.5 mm (37 AAC) up to 70 mm (85 AAC) • Ratings up to 660 VAC, 85 AAC, 18000 A²s • E-type (contactor) or U-type (SSR) terminal layout • 100 kA UL short circuit current rating • Approvals: CE - cULus - VDE - EAC - UKCA - GL (up to 30 AAC)	• Zero Cross switching, Blocking voltage up to 1600 Vp • Ratings up to 759 VAC, 65 AAC, 6600 A²s • Integrated varistor on output (up to 660 VAC) • 100 kA UL short circuit current rating • Approvals: CE - cULus - VDE - EAC - UKCA	• 3-pole [RGC3A] or 2-pole switching + 1 direct pole [RGC2A] • Ratings up to 660 VAC, 75/65 AAC [RGC2/3] • Motor ratings up to 11 kW/ 15 HP @ 400 VAC • RGC..M for system malfunction monitoring • Approvals: CE - cULus - EAC - CCC - UKCA - VDE [RGC..10]

Solid state relays

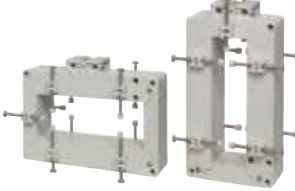
Carlo Gavazzi now offers additional features to the switching function of the SSR. Integrated monitoring of loads or SSR malfunction ensures a timely failure detection and so scrap and rework costs in production plants are kept to a minimum. SSRs with a communication interface embrace Industry 4.0. Data is accessible from SSRs in real time and can be used to predict machine abnormalities in a timely manner to avoid stoppages.

Carlo Gavazzi also offers a range of accessories that complement the solid state relay solutions, such as heatsinks, terminal adaptors, protection covers and thermal interfaces. Carlo Gavazzi's SSRs conform to international standards.

Proportional controllers RM1E	Proportional controllers RGS1P	Proportional controllers RGC1P	Proportional controllers RGC2P, RGC3P
			
• Phase angle switching • Ratings up to 660 VAC, 125 AAC, 18000 A²s • 4-20 mA or 0-10 VDC analogue input • Integrated varistor for output protection • Approvals: CE - UR - CSA - EAC - UKCA	• Selectable switching mode - Phase angle, full cycle, advanced full cycle switching or soft start • 4-20 mA or 0-10/0-5/1-5 V input • Ratings up to 660 VAC, 90 AAC • Integrated varistor for output protection • Approvals: CE - UR - CSA - EAC - UKCA	• Selectable switching mode - Phase angle, full cycle, advanced full cycle switching or soft start • 4-20 mA or 0-10/0-5/1-5 V input • Ratings up to 660 VAC, 63 AAC • Integrated varistor for output protection • Approvals: CE - cULus - EAC - UKCA	• Phase angle, full cycle, advanced full cycle switching or soft start • 0-20/4-20/12-20 mA or • 0-10/0-5/1-5 V input • RGC2P ratings (2-phase): 660 VAC, 75 AAC/pole • RGC3P ratings (3-phase): 660 VAC, 65 AAC/pole • Integrated monitoring for load loss or SSR malfunction • Approvals: CE - cULus - EAC - CCC - UKCA
System monitoring RA..S	System monitoring RGS..M, RGC..M	Current sensing RGS1S, RGC1S	Communication interface NRG
			
• Monitoring for mains loss, load or SSR failure • Ratings up to 530 VAC, 110 A • DC control voltage, DC external supply • Normally open or normally closed alarm output • Approvals CE - UR - CSA - EAC - UKCA	• Monitoring for system fault (mains loss, load loss, SSR open and short circuit), SSR internal error and supply out of range • Ratings up to 660 VAC, 90 AAC • DC control voltage, DC external supply • Transistor output for remote alarm signalling • Approvals CE - UR - CSA - cULus [RGC] - EAC - UKCA	• Zero Cross switching with integrated current measurement • Partial load failure detection (1/6) • Monitoring for system malfunction with alarm output • Ratings up to 660 VAC, 90 AAC, 18000 A²s • Approvals: CE - UR - CSA - cULus [RGC] - EAC - UKCA	• PROFINET, EtherNet/IP™, EtherCAT, Modbus RTU / TCP • 32 SSRs per bus chain • ON/OFF, Full cycle, Advanced full cycle, Burst, Phase angle and soft start switching • Read-outs: current, voltage, frequency, power, energy, running hours and diagnostics • Ratings up to 660 VAC, 90 AAC • Approvals: CE - cULus - UR - CSA - EAC - UKCA - CCC
Integrated over temperature protection RGC..P	Peak switching RM1C	Heatsinks	Accessories
			
• Ratings up to 660 VAC, 85 AAC, 18000 A²s • Output protected against overheating, automatic re-start after cool down • Transistor alarm output for remote signalling • Control ON and Fault LED indication • Approvals: CE - cULus - VDE - EAC - UKCA	• Ideal for switching of transformers and highly inductive loads • Ratings up to 660 VAC, 100 A • DC control voltage • Control ON LED • Approvals: CE - cURus - CSA - EAC - UKCA	• A wide range of heatsinks suitable for DIN, panel or thru wall mounting • Thermal resistance values from 5.4 to 0.4°C/W • 24 VDC, 115 VAC or 230 VAC supply voltage for heatsinks with integrated fan • RoHS compliant	• A wide range of other accessories suitable for use with SSRs: thermal pads, touch protection covers, varistors, terminal adaptors, cable accessories • Optionally pre-assembled from factory • All accessories are RoHS compliant

Energy meters and analysers

Main electrical metering is essential to monitor all the electrical variables coming from the submetering. Installations are becoming more and more demanding, some of them powering critical loads, so power quality with harmonic analysis is vital. Carlo Gavazzi's range provides various mounting and installation solutions to meet different application requirements. In many cases the meters, in an electrical installation, have to measure high currents, which is why Carlo Gavazzi offers a comprehensive range of current transformers, compatible with both the main meters and the submeters.

Energy transducer ET112	Energy transducer ET330	Energy transducer ET340	Power analyzer WM15
			
• DIN-rail mounting • 1-phase, 120 or 240 VAC, 100 AAC • Class 1 (kWh), 0.5% RDG (V, A) • RS485 Modbus port, optical port • Approvals: CE - UKCA	• DIN-rail mounting • 400 to 480 V_{LL} AC, 5 AAC • Class 0.5S (kWh), 0.5% RDG (V, A) • RS485 Modbus port, optical port • Approvals: CE - cULus	• DIN-rail mounting • 208 to 400 V_{LL} AC, 65 AAC • Class 1 (kWh), 0.5% RDG (V, A) • RS485 Modbus port, optical port • Approvals: CE	• Panel mounting • 208 to 600 V_{LL} AC, 5(6) A • Class 1 or Class 0.5S (kWh), 0.5% RDG (V, A) • Pulse/alarm output, optional Modbus RS485 or M-Bus port • Approvals: CE - MID - cULus - UKCA
Modular power analyzer WM20	Modular power quality analyzer WM30	Modular power quality analyzer WM40	Modular branch circuit analyzer WM50
			
• Panel mounting • 230 or 690 VAC, 5 AAC • Class 0.5S (kWh), 0.2% RDG (V, A) • Up to 2 outputs, optical port, Modbus RS485 and Ethernet, BACnet MSTP and IP, Profibus • Approvals: CE - cULus - UKCA	• Panel mounting • 230 or 690 VAC, 5 AAC • Class 0.5S (kWh), 0.2% RDG (V, A) • Up to 4 outputs, optical port, Modbus RS485 and Ethernet, BACnet MSTP and IP, Profibus • Approvals: CE - cULus	• Panel mounting • 230 or 690 VAC, 5 AAC • Class 0.5S (kWh), 0.2% RDG (V, A) • Up to 6 inputs, up to 8 outputs, optical port, Modbus RS485 and Ethernet, BACnet MSTP and IP, Profibus • Approvals: CE - cULus	• Panel mounting • 208 to 480 VAC, 5 AAC + TCD • Main unit: Class 0.5S (kWh), 0.2% RDG (V, A). TCD: 0.5% (V, A) • Up to 96 sub-metering 65 A ch. Up to 6 digital inputs, up to 6 outputs, optical port, Modbus RS485 and Ethernet • Approvals: CE - cULus
Power transducer CPT	Current transformer CTD X	Current transformer CTD V/H	Current transformer CTD S
			
• DIN-rail mounting • 208 or 600 VAC, 1 or 5 AAC • Class 1 (kWh), 0.5% F.S. (V, A) • RS485 port, relay, open collector, or analogue output or Dupline® bus • Approvals: CE - cURus - CSA	• DIN-rail, cable or bus-bar mounting • Solid core current transformers • Primary: from 40 to 1600 AAC • Secondary: 5 A or 1 A • Approvals: EN 61869-2 - cURus - CSA	• Bus-bar mounting • Solid core current transformers • Primary: from 100 to 4000 AAC • Secondary: 5 A or 1 A • Approvals: EN 61869-2 - cURus - CSA	• Bus-bar mounting • Split core current transformers • Primary: from 100 to 3200 AAC • Secondary: 5 A or 1 A • Approvals: EN 61869-2 - cURus - CSA

Energy meters and analysers

A comprehensive range of energy meters, analyzers and transducers (AC and DC) focused on submetering and cost allocation. Carlo Gavazzi provides a solution to industrial, commercial, residential, power generation and EV chargers applications where accuracy, standard compliance (including MID), electrical variable metering, analysis and communication are all important factors.

Energy analyzer EM110	Energy analyzer EM111	Energy analyzer EM112	Energy analyzer EM330
			
- DIN-rail mounting 1-phase, 120 or 230 VAC, 32 A direct connection - Class 1 (kWh) - Pulse output - Approvals: CE - MID - cULus	- DIN-rail mounting 1-phase, 120 or 230 VAC, 32 A direct connection, 5 A or 333 mV CT input - Class 1 (kWh), 0.5% RDG (V, A) - RS485 Modbus port, M-Bus port, or pulse output - Approvals: CE - MID - cULus	- DIN-rail mounting 1-phase, 120 or 230 VAC, 100 A direct connection - Class 1 (kWh), 0.5% RDG (V, A) - RS485 Modbus port, M-Bus port, or pulse output - Approvals: CE - MID	- DIN-rail mounting 400 to 480 V_{LL} AC, 5 A CT input - Class 1 (kWh), 0.5% RDG (V, A) - RS485 Modbus port, M-Bus port, or pulse output - Approvals: CE - MID - UL
Energy analyzer EM340	Energy analyzer EM511	Energy analyzer EM530	Energy analyzer EM540
			
- DIN-rail mounting 208 to 400 V_{LL} AC, 65 A direct connection - Class 1 (kWh), 0.5% RDG (V, A) - RS485 Modbus port, M-Bus port, or pulse output - Approvals: CE - MID	- DIN-rail mounting 1-phase, 120 to 240 VAC, 45 A direct connection - Class 1 (kWh), 0.5% (V, A) - RS485 Modbus port, M-Bus port, or digital output (pulse or alarm) - Approvals: CE - cULus - UKCA - MID	- DIN-rail mounting 208 to 415 V_{LL} AC, 5A CT input - Class 0.5S (kWh), 0.3% (A), 0.2% (V) - RS485 Modbus port, M-Bus port, or digital output (pulse or alarm) - Approvals: CE - cULus - UKCA - MID	- DIN-rail mounting 208 to 415 V_{LL} AC, 65 A direct connection - Class 1 (kWh), 0.5% (V, A) - RS485 Modbus port, M-Bus port, or digital output (pulse or alarm) - Approvals: CE - cULus - MID
Energy analyzer EM24 W1 I	Power transducer CPA	DC Energy meter VMU E - VMU X	DC Energy transducer DCT1
			
- DIN-rail mounting 208 to 480 V_{LL} AC, 5A CT or 65 A direct connection - Class 1 (kWh), 0.5% RDG (V, A) - M-Bus, RS485 Modbus, Modbus TCP Ethernet port or wireless M-Bus (internal or external antenna) - Approvals: CE - cULus - MID	- Contactless power analyzers 1-phase AC (from 1 to 400 Hz) or DC systems - RS485 communication port (Modbus) - Current range: [CPA050] 50 AAC / 50 ADC [CPA300] 300 AAC / 400 ADC - Voltage range: 800 VAC / 1000 VDC - Approvals: CE - cURus	- DIN-rail mounting 400 VDC, 1000 A (20 A direct) - Class 1 (kWh), 0.5% RDG (V, A) - RS485 Modbus port or static output - Approvals: CE	- DIN-rail mounting 150 to 1000 VDC, 300 or 600 A max - Class 1 according to IEC 62053-41, class B according to VDE-AR-E 2418-3-100 Annex A (kWh), 0.5% (V, A) - RS485 Modbus port (256-bit or 384-bit signature), SML port - Approvals: CE - cURus - UKCA

Energy meters and analysers

Up-to-date designs, quality, attention to details, such as installation features and installation time, all mean that Carlo Gavazzi products are very competitive in the market. A full retrofit range of meters offering metering and monitoring solutions to meet every need can be found in our product portfolio.

Retro-fit energy analyzer EM210AV	Retro-fit energy analyzer EM210MV	Quick-fit energy meter EM270 and TCD X	Quick-fit energy meter EM271 and TCD M
			
• DIN-rail and panel mounting • 230 or 415 VAC, 5 A CT input • Class 1 (kWh), 0.5% RDG (V, A) • RS485 Modbus port, static output • Approvals: CE - cULus	• DIN-rail and panel mounting • 230 or 415 VAC, or 60 to 800 AAC measured by CTV or ROG current sensors • Class 1 (kWh), 0.5% RDG (V, A) • RS485 Modbus port, static output • Approvals: CE - cULus - UKCA	• DIN-rail and panel mounting • 230 or 415 VAC, 160 to 630 AAC measured by up to 2 TCD X triple current transformers • Class 1 (kWh), 0.5% RDG (V, A) • RS485 Modbus port, static output • Approvals: CE - cULus - UKCA	• DIN-rail and panel mounting • 230 or 415 VAC, 60 to 400 AAC measured by up to 2 TCD M split-core triple current sensors • Class 1 (kWh), 0.5% RDG (V, A) • RS485 Modbus port, static output • Approvals: CE - cULus - UKCA
Quick-fit energy transducer ET272 and TCD M	Quick-fit energy meter EM280 and TCD06BX	Quick-fit energy meter EM280 and TCD06BS	EM200-96 Adapter
			
• DIN-rail mounting • 277 to 415 VAC, 60 to 400 AAC measured by up to 2 TCD M split-core triple current sensors • Class 1 (kWh), 0.5% RDG (V, A) • RS485 Modbus port with self-addressing capability • Approvals: CE - cULus	• DIN-rail and panel mounting • 230 or 415 VAC, 32 AAC measured by 6-channel TCD06B current transformer block (solid core) • Class 1 (kWh), 0.5% RDG (V, A) • RS485 Modbus port, static output • Approvals: CE - cULus	• DIN-rail and panel mounting • 230 or 415 VAC, 32 AAC measured by 6-channel TCD06B current transformer block (split core) • Class 1 (kWh), 0.5% RDG (V, A) • RS485 Modbus port, static output • Approvals: CE - cULus	• 96x96 panel mounting adapter for EM210, EM270, EM271 and EM280
Rogowski current sensors ROG4X	Rogowski current sensors ROG4U	Current sensor CTV	Split-core current transformers CTA
			
• Cable mounting • Rogowski split core current sensors for EM210 MV • Primary: up to 4000 AAC • Secondary: direct connection to EM210 MV without any external converter • Approvals: CE - cURus	• Cable mounting • Rogowski split core current sensors for EM210 MV and EM50 RG5 • Primary: up to 2000 AAC • Secondary: direct connection to EM210 MV or EM50 RG5 without any external converter • Approvals: CE - cULus (UL2808)	• Cable mounting • Miniature split core current sensors • Primary: from 60 to 800 AAC • Secondary: 333 mV • Approvals: CE - cURus	• Cable mounting split-core current transformers • Primary: from 100 to 600 AAC • Secondary: 5 A • Approvals: CE - cURus

IloT data management, communication and control

The mounting of a power analyzer or an energy meter on a power distribution unit is not enough to effectively manage the whole electrical installation, because the data available on the display would seldom be read and controlled. To be effective, remote reading and reporting of historical data is required. A control room can gather the readings while the data can be analysed and used as a basis for decision-making, all thanks to a fully automated system. Carlo Gavazzi can provide solutions for small, medium size and large plants for energy efficiency monitoring, photovoltaic monitoring and datacenter monitoring.

MAIA Cloud	Em ² -Server	HMI displays BTM series	Multi-function IloT Edge XAP10RSEXX
			
- Cloud solution for remote management of IoT devices - Compatible with UWP4.0, UWP4.0 SE and XAP. - Secure VPN Management - User authentication and organization management - Remote connection to gateways, connected endpoints and connected meters	- Cloud or On-Premise solution for multi-site energy management - Virtual machine software integrating database and web-server - Data aggregation from up to 100 sites/installations - Advanced data management functions - Management of up to 100 UWP units	7" 10" and 15.6" colour HMI displays - Fully programmable by the dedicated BTM-PC- IDE software - IloT data distribution via MQTT and OPC UA - BACnet, Modbus and KNX protocols with gateway/routing capabilities - Ethernet, serial and USB ports	- Controller and Gateway, PLC for Building Automation Functions and energy management. - Fully programmable by the dedicated BTM-PC- IDE software - Codesys and Node-RED capabilities - Ethernet, serial and USB ports
IloT Edge devices UWP 4.0 / UWP 4.0 SE	Long range wireless gateway UWPM	Long range wireless solution UWP A	M-Bus to Modbus/TCP Gateway SIU-MBM-02
			
- Datalogger/Gateway/Controller with Web-Server, for energy efficiency management applications - Security Capabilities Verified by UL to level SILVER (SE) - MAIA Cloud secure remote access - Dashboards and reports	- LoRa master concentrator that permits UWP to gather data from multiple UWPA adapters. - Long-range wireless (EU868 and US915 Bands, Europe and North America) - Comprehensive solution for integrating CG meters and analysers into CG private LoRa network - Universal power supply	- Endpoint adapter that provides LoRa® or LoRaWAN® communication to an RS485 Carlo Gavazzi meter - Long range wireless (EU868 and US915 Bands, Europe and North America) - Up to 10 km range in open air, 1 km in typical applications. - Universal power supply	- M-Bus to Modbus/TCP gateway 20 wired M-Bus devices and 32 wireless M-Bus devices - Compatible with SIU-MBC radio transmitter (pulse output counter) - Set-up by free UCS software - Approvals: CE - Rapid and automatic integration with the UWP 4.0
M-Bus to Modbus/TCP Gateway SIU-MBM01	M-bus to Modbus converter VMU B	Pulse concentrator VMU-MC	Pulse concentrator VMU-OC
			
- M-Bus to Modbus/TCP gateway - Up to 20 M-Bus devices (SIU-MBM-01) - Up to 160 M-Bus devices (SIU-MBM-01-160) - Set-up by free UCS software - Approvals: CE - Rapid and automatic integration with the UWP 4.0	- DIN-rail mounting - RS485 Modbus master - For EM210, EM270, EM271, EM280, WM15 - M-Bus output port - Approvals: CE	- Remote input status reading / tariff management / pulse counting - Can be used singularly or with the addition of VMU-OC modules (from 1 to 3) - Plug'n'play connection to UWP 4.0 or UWP 4.0 SE 6 digits LCD display	- Pulse counter accessory module - Powered by VMU-MC - Totalizers calculation and Modbus/RTU communication - Each unit handles up to 3 SO inputs - Suited for small spaces and existing systems with pulse output meters

IIoT field devices

Carlo Gavazzi's modular concept for home and building automation is based on a patented digital bus, the two-wire Dupline® controlling and monitoring applications for example lighting, roller blinds, heating, air-conditioning and alarms. This innovative system allows considerable savings in energy consumption, increasing comfort and safety. Operations, services and maintenance are simplified, with complete status overview anytime and anywhere. It can also be interfaced to any building automation system via BACnet/IP.

Dupline® bus generators SH2MCG24	Wireless Dupline® bus generators SH2WBU230N	DALI-2 bus generators DLI-MCG024	Repeater modules SB2REP230
			
• Connection to UWP 4.0 via internal bus or terminals via the high-speed bus • Up to 7 SH2MCG24 can be connected on the same network • Dimensions: 2-DIN modules • Advanced management of input and output signals for monitoring and control functions	• Connection to UWP 4.0 via internal bus or terminals via the high speed bus • Wireless transmission based on IEEE 802.15.4, @ 2.4 GHz • Max. wireless nodes per network: 250 • Operating distance: 700 m in the open air with one repeater • Dimensions: 2-DIN modules	• DALI-2 Master module • DALI driver for DT6 and DT8 LEDs • Up to 64 control gears • Up to 64 control devices • Tunable white management • Dimensions: 2-DIN modules	• Regenerates the Dupline® carrier signal with 300 mA output • Extends network length • Isolates the primary and secondary Dupline® • 230 VAC power supply • Dimensions: 2-DIN housing • Dimensions: 2-DIN modules
Wireless repeater modules SBP2WREP230	Phase angle dimmer modules SH2D500WE230	0-10V Dimmer modules SH2D10V424	Relay modules SH2RE16A4
			
• Smart-Dupline wireless repeater • Extends wireless network coverage • 230 VAC / 24 VDC power supply • Operating distance: 700 m in the open air with one repeater • Dimensions: 2-DIN modules	• Universal dimmer switch for R, L, C up to 500 W and LED loads • Automatic load detection for L, R, C loads • Integrated heat sink for temperature dissipation • Connection to other cabinet modules via local bus • Dimensions: 2-DIN modules	• 1-10V dimmer to control up to 4 1-10 V Ballasts • 24 VDC power supply • Max. load capacity: 50 mA on each output • Connection to other cabinet modules via local bus • Dimensions: 2-DIN modules	• Smart-Dupline output module, 4 Relays, up to 16 A • LED indications for supply, bus, and output status • Push button for local on/off switching • Supplied by the Dupline® bus on the local bus • Dimensions: 2-DIN modules
Relay modules SH2SSTRI424	Digital input modules SH2INDI424	Rollerblind modules SH2ROAC224	Fire damper modules SBB
			
• Smart-Dupline output module, 4 solid state relays • LED-indications for supply, bus and output status • Push button for local on/off switching • 24 VDC power supply • Dimensions: 2-DIN modules	• 4 digital inputs NPN, PNP, voltage free • The 4 inputs can be configured as contact or counter • LED indication for power supply, Dupline® bus, input activated • Connection to other cabinet modules via local bus • Dimensions: 2-DIN modules	• Up/down control of 2 AC/DC rollerblind motors • LED indication for power supply, Dupline® bus, motor up, motor down • Push button for local on/off switching • Connection to other cabinet modules via local bus • Dimensions: 2-DIN modules	• I/O module to control two fire dampers • Box ready for wall mounting near dampers • Four contact inputs, two relay outputs 230 VAC / 5 A • Power supply: 24 to 230 VAC • Degree of protection: IP55

IIoT field devices

The Dupline® bus provides several advantages to building automation systems. The simplified wiring and high flexibility of the bus-powered sensors and decentralized I/O modules can provide considerable installation cost reductions. Due to the cost-effective design of the smart-house modules, this can be achieved by using materials with a cost comparable to the traditional hardwired solutions.

The issue is to interface Dupline® and Energy Meters to the building automation controllers and building management systems and with the UWP 3.0 BACnet controller, all data points from Dupline® and Energy Meters are now automatically made available as BACnet objects, ready to be used by any building automation controller or BMS from the major suppliers.

Wired/Wireless light switches SH series	Temperature displays SH series	PIR detectors + Luxmeter SH / SHQ series	DALI- 2 PIR detectors DLI-P360
			
• 4 individually programmable push buttons • Blue and red LEDs for wireless field power and battery level • Battery supplied /bus supplied • SHA4xxx: developed to fit into wall sockets and frames from Fuga, NIKO and Bticino • SHE5xxx: developed to fit into wall sockets and frames from Elko, Gira and Jung	• Temperature controller with display • Shows current room, outdoor and auxiliary temperature • Bus powered, no external supply required • SHA: Developed to fit into wall sockets from Fuga, NIKO and Bticino • SHE: Developed to fit into wall sockets from Elko, Gira and Jung	• Passive infrared detector (PIR) • Detects movement and presence • Bus powered, no external supply required • Walk test: LED indication • Programmable sensitivity	• Passive infrared detector (PIR) with built-in luxmeter, and temperature sensor • Programmable and operated by UWP 4.0 or any DALI-2 controller • Detection range up to 24 square meters • Walk test: LED indication • Programmable sensitivity
Wireless relay SHJWRE10A	Wireless energy meter SHJWEM16A	Wireless dimmer SHJWD200WE	Wireless input and pulse counter module SHJWIN50
			
• Small sized single relay output for eurobox mounting • Energy reading • Range up to 700 m in open air • Load: 10 A/250 VAC • Capacitive touch buttons for a plug&play replacement of standard switches (Bticino only)	• Small sized for eurobox mounting • Values readout: A, V, W, Wdmd, VA, var, PF, kWh • Range up to 700 m in open air • Direct connection up to 16 A	• Universal dimmer switch for R, L, C up to 200 W and LED loads • Automatic load detection for L, R, C loads • Range up to 700 m in open air • Capacitive touch buttons for a plug&play replacement of standard switches (Bticino only)	• Input module with 4 configurable inputs: S0 class B pulse counter or voltage free input • Count values are stored in non-volatile memory • Counts up to 99999999 with rollover • Range up to 700 m in open air
Environmental sensors SHS series	Decentralised analogue input/output modules SHPIN/SHPOUT	Decentralised Input module / Pulse counters BDB/SHPINCT	Decentralised relay modules BDA-RE13A-U
			
• CO₂ temperature and humidity sensors • CO₂ measuring range: 0 to 2000 ppm • Temperature measuring range: -20°C to 50 °C • Humidity measuring range: 0 to 100 %RH • LCD Display and touch function to activate backlight and change signal type	• Output modules with two 0-10 V outputs • Input modules for thermistor, resistor and voltage measuring: pt1000, ni1000, 10K3 thermistor input, 1-11K resistor input, 0-10 V input, 4-20 mA • Small dimensions for decentralized installations • 24 VDC power supply	• Input module with 4 configurable inputs: S0 class B pulse counter or voltage free input • Count values are stored in non-volatile memory • Counts up to 99999999 with rollover • 24 VDC power supply	• Small sized single relay output • Load: 13 A / 250 VAC • Withstands 130 A inrush current • Supplied by Dupline® bus

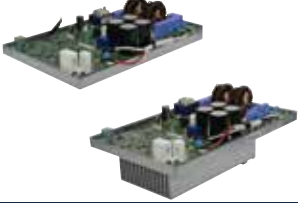
Soft starters

Carlo Gavazzi offers a comprehensive range of soft starting and motor reversing solutions for single and three phase squirrel cage a.c. induction motors. Carlo Gavazzi offers solutions specifically designed for scroll compressors (RSBS, RSBD, RSBT, HDMS). For other applications such as centrifugal pumps, ventilators, dryers, mixers, fans, hydraulic pumps and piston compressors, general purpose solutions such as the RSGD and RSGT are available. Carlo Gavazzi soft starters are designed with self-learning algorithms for ease of use and better load matching. The RGTS is a fully solid-state soft starter for single phase applications that require high frequency switching. In addition, customized solutions to satisfy specific customer requests can be provided.

Scroll compressor soft starters RSBD 45 mm	Scroll compressor soft starters RSBD 75 mm	Scroll compressor soft starters RSBT 45 mm	Scroll compressor soft starters RSBT 120 mm
			
- Operational current: 12 to 45 A - Self-learning algorithm with current balancing - Top of ramp and alarm relay indication - Max. starts per hour: 12 - Approvals: CE - cULus - EAC	- Operational current: 55 to 95 A - Self-learning algorithm for current reduction - No user adjustments required - Max starts per hour: 12 - Approvals: CE - cULus - EAC	- Operational current: 16 to 32 A - Self-learning algorithm with high pressure function - No user adjustments required - Optional: serial communication (Modbus) [VC1HP] - Max. starts per hour: 12 - Approvals: CE - cULus - VDE - CCC	- Operational current: 55 to 95 A - Self-learning algorithm for improved current reduction - Optional: serial communication (Modbus) [VC] - Max. starts per hour: 12 - Approvals: CE - cULus - CCC - EAC
General purpose soft starters RSGT 45 mm	General purpose soft starters RSGT 75 mm/120 mm	General purpose soft starters RSGD 45 mm	General purpose soft starters RSGD 75 mm
			
- Operational current: 12 to 25 A - Operational voltage: 220 - 600 VAC - Self-learning algorithm with current ramp and current limit 3-phase control with internal bypass - Optional: serial communication (Modbus) [V10C] - Approvals: CE - cULus - EAC	- Operational current: 32 to 90 A - Operational voltage: 220 - 600 VAC - Self-learning algorithm with current ramp and current limit 3-phase control with internal bypass - Serial communication (Modbus) on all models - Approvals: CE - cULus - EAC	- Operational current: 12 to 45 A - Operational voltage: 220 - 600 VAC - Self-learning algorithm with current ramp and current limit and current balancing 2-phase control with internal bypass - Optional: motor overload protection (Class 10) [V210] - Serial communication (Modbus) [210C] - Approvals: CE - cULus - CCC - EAC	- Operational current: 55 to 100 A - Operational voltage: 220 - 600 VAC - Self-learning algorithm with current ramp and current limit and current balancing - PTC input and remote reset of alarms - Serial communication (Modbus) on all models - Approvals: CE - cULus - CCC - EAC
Motor reversing relay RR2A	1-phase solid state soft starter RGTS	1-phase compressor soft starter RSBS	1-phase dynamic motor starter HDMS
			
- Operational current: up to 11 A - Motor reversing relay - Built-in interlock function - Integrated voltage transient protection - Approvals: CE - UL - cUL	- Operational current: 12/16/25 A - Operational voltage: 100 - 240 VAC 100 kA short circuit current rating - Max. starts per hour: 10 - Approvals: CE - cULus	- Operational current: 32 A - Current limit starting with a high pressure function - Max. starts per hour: 10 - Approvals: CE - cULus - EAC	- Operational current: 12 to 37 A - Eliminates the need for a start capacitor typically used to start single phase motors >70% start current reduction on scroll compressors and submersible pumps - Tool-free terminals - Approvals: CE - cULus

Frequency drives

Carlo Gavazzi offers a range of variable frequency drives (VFDs) for general purpose applications (RVLF). Carlo Gavazzi also offers PC software that facilitates parameter configuration and also makes it is easy to download the configuration onto multiple VFDs.

General purpose VFD RVLF 1-phase 100 V	General purpose VFD RVLF 1-phase 200 V	General purpose VFD RVLF 3-phase 200 V	General purpose VFD RVLF 3-phase 480 V
			
• V/F Control + Sensorless Vector control • Input voltage 1-phase 100-120 VAC • 0.4 kW and 0.75 kW • Built-in RJ45 for MODBUS and BACNet communication • Panel mount or DIN-rail (with accessory)	• V/F Control + Sensorless Vector control • Input voltage 1-phase 200-240 VAC • 0.4 kW to 2.2 kW • Built-in RJ45 for MODBUS and BACNet communication • Built-in Class 2 EMI filter • Panel mount or DIN-rail (with accessory)	• V/F Control + Sensorless Vector control • Input voltage 3-phase 200-240 VAC • 0.4 kW to 2.2 kW • Built-in RJ45 for MODBUS and BACNet communication • Panel mount or DIN-rail (with accessory)	• V/F Control + Sensorless Vector control • Input voltage 3-phase 380-480 VAC • 0.75 kW to 11 kW • In built RJ45 for MODBUS and BACNet communication • Built-in Class 2 EMI filter • Panel mount or DIN-rail (with accessory)
General purpose VFD RVBS 1-phase 230 V	Doors and entrances VFD RVDS 1-phase 230 V	Compressor VFD RVPM 1-phase 230 V	Compressor VFD RVPM 3-phase 400 V
			
• V/F control • Input voltage 1-phase 200-240 VAC • 0.55kW and 0.75kW • Built-in Modbus communication • Panel mounting	• Sensorless vector control • Input voltage 1-phase 200-240 VAC • 0.55kW and 0.75kW • Built-in RJ45 for Modbus communication • Panel mounting	• V/F control + Sensorless vector control • Input voltage 1-phase 200-240 VAC • Up to 4.5kW • Built-in RJ45 for Modbus communication • Panel mounting	• V/F control + Sensorless vector control • Input voltage 3-phase 380-480 VAC • Up to 8 kW • Built-in RJ45 for Modbus communication • Panel mounting
Keypad RVDS	PFC reactor and DC choke RVPM	DIN-clip RVLF size A and B	USB connection cable RVLF
			
• Remote keypad LED display + Cable • Low-voltage industrial components • Frequency converter ≤ 1 kV	• PFC reactor for 1ph RVPM [RVDC0500] • DC choke for 3ph RVPM [RVDC0800] • Low-voltage industrial components • Frequency converter ≤ 1 kV	• Plastic DIN-clip and mounting screws for RVLF Size A and B models	• Isolated USB to RJ45 cable for RVLF configuration

Monitoring relays

Carlo Gavazzi offers a comprehensive range of monitoring relays for the detection of: phase loss, incorrect phase sequence, phase unbalance, over/under current, over/under load, over/under frequency, over/under voltage and overtemperature. Our products include monitors for: current, voltage, power, power factor, 3-phase systems, motor temperature and also current transformers. These monitors can be used in a wide range of applications for protecting motors against improper supply and overload (elevators, compressors, pumps, air conditioning systems, mixing tanks), and also protect properties against the risk of fire caused by loss of insulation or current leaks.

3-phase relays DPA51/DPA52	3-phase relays DPA55	3-phase relays DPB51/DPB52	3-phase relays DPB01
			
• Phase sequence • Phase loss/regenerated voltage detection • No setup required • 5 A SPDT relay output	• Phase sequence • Phase loss • Voltage window • Incorrect connection proof (208-480 VAC power supply) • 5 A SPDT relay output	• Phase sequence • Phase loss • 3P systems, 3P+N systems [DPB51] • Independent overvoltage and undervoltage settings • Adjustable alarm ON delay • 5 A SPDT relay output	• 3P systems, 3P+N systems, up to 400 Hz [CM44] • Phase sequence and phase loss • Independent overvoltage and undervoltage settings • Adjustable alarm ON delay • 8 A SPDT relay output
3-phase relays DPB02	3-phase relays DPC01	3-phase relays DPC02	3-phase relays DPD02
			
• 3P systems, 3P+N systems, up to 400 Hz [CM44] • Phase sequence and phase loss • Voltage asymmetry setting • Adjustable alarm ON delay • 8 A SPDT relay output	• 3P systems, 3P+N systems, up to 400 Hz [DM44] • Phase sequence and phase loss • Independent overvoltage and undervoltage setting + asymmetry and tolerance setting • Separate adjustable alarm ON delays • 2 x 8 A SPDT relay output	• 3P systems, 3P+N systems, up to 400 Hz [DM44] • Phase sequence and phase loss • Independent overvoltage and undervoltage setting + overfrequency and underfrequency setting • Separate adjustable alarm ON delays • 2 x 8 A SPDT relay output	• 3P systems, 3P+N systems, up to 400 Hz • NFC device configuration and real time reading, through dedicated Android, iOS or Windows App • All 3-phase voltage values can be monitored and combined to each relay • Alarm ON or OFF delay and hysteresis individually set for each variable • 2 x 8 A SPDT relay output
Current relays DIA01/DIA02	Current relays DIA53/EIS H	Current relays DIB01/DIB02	Current transformers A82
			
• 0.5 - 5 AAC/DC [DIA01] • 2 mA - 5 AAC/DC [DIA02] • Overcurrent setting • 8 A SPDT relay output	• 200 mA - 60 AAC range [EIS H] • 2 A - 100 AAC range [DIA53] • No power supply required • Overcurrent setting [DIA53] • ON/OFF monitoring (no adjustment required) [EIS H] • NPN/PNP transistor output [DIA53] • AC/DC solid state output [EIS H]	• 0.1 mA to 5 AAC/DC [DIB01] • 60 mV/150 mV [DIB02] • 2 A to 100 AAC [100A] • Overcurrent or undervoltage setting • Adjustable alarm ON delay • 8 A SPDT relay output	• Wall mounting • Cable hole • 5 types of input up to 500 AAC • 3 types of output: 4 - 20 mA DC, 0 - 20 mA DC, 0 - 10 VDC • LED indication for power supply

Monitoring relays

The possibilities for monitoring relays are countless: verification of machinery operation, detection of broken heater elements, lighting monitoring in critical areas (airport runways, buildings aircraft warning lights, tunnels), monitoring of ventilation fans and in building automation systems. Protection can be provided against people, fire, earth current leakage, or protecting from incorrect mains or cables connections. Also cabling and mounting is eased using different types of housing, double cage terminals, or pass-through connections for current measurement. Setup is always easy and accurate with the front dials and DIP switches.

Current transformers E83	Voltage relays DUA01/DUB01	Voltage relays DUA52	Voltage relays DUA55
			
- DIN-rail or wall mounting - Small size 12 mm cable hole 7 selectable input ranges up to 50 AAC - LED indication for power supply - Output 4 - 20 mA DC	- AC/DC TRMS over or undervoltage monitoring - Range up to 500 VAC or DC - Adjustable delay and hysteresis [DUB01] - Programmable latching / inhibit 1 x 8 A SPDT relay output	- DC battery undervoltage monitoring 12 V, 24 V and 48 V battery systems - Adjustable voltage and hysteresis settings 1 x 5 A SPDT relay output	- Voltage window relay - Nominal voltage from 208 to 240 VAC - Monitoring of own supply - Incorrect connection proof (208-480 VAC power supply) 5 A SPDT relay output
Voltage relays DUB02/DUB03	Current/Voltage relays DIC01/DUC01	Thermistor relays DTA01/02, DTA71/72	Thermistor relay DTA04
			
- Over and undervoltage monitoring - Measure own supply 24 V, 115 V, 230 VAC [DUB02], 24-240 VAC/DC [DUB03] - Adjustable delay on alarm ON or on recovery - Programmable latch / inhibit function 1 x 8 A SPDT output	- TRMS AC or DC voltage monitoring - Over + over or over + under or under + under - Separately adjustable delays, adjustable hysteresis - Programmable latch / inhibit function 2 x 8 A SPDT relay output	- Motor thermistor relays for PTC connection - Remote or local, automatic or manual alarm reset - PTC open or short circuit information LED for status and troubleshooting 1 or 2 relays output	- Motor thermistor relays for PTC connection - Remote or local, automatic or manual alarm reset - PTC open or short circuit. Information LED for status and troubleshooting 2 x 8 A SPST relay output - Relay outputs for contactor opening and signalling 24 V to 240 VAC/DC power supply voltage
Earth Leakage DEA71/DEB71	Frequency relays DFB01/DFC01	Power relays DWA01/DWB	Pump alternating relays DLA71/DLA73
			
- Fixed [DEA71] or adjustable I_{Δn} threshold [DEB71] - Warning output @ 60% I_{Δn} - Trip Output @ 80% I_{Δn} - Adjustable time delay [DEB71] 2 SPDT relay outputs - Sealable antitampering lid [DEB71] - Works with CTG core balance transformers with openings from 35 mm to 210 mm	- Over and underfrequency monitoring - Rated frequency 50 Hz or 60 Hz - Adjustable delay on alarm ON or on recovery - Programmable latch / inhibit function 1 x 8 A SPDT output [DFB01] 2 x 8 A SPDT output [DFC01]	- Cosφ or Active power monitoring - Direct reading up to 5 A, 10 A or through "MI" current transformers for higher currents - Adjustable Cosφ or selectable independent upper and lower values - Adjustable delay ON 1 x 8 A SPDT relay output	- For 2 or 3 pumps - Pump rotation and multiple pumps activation - Overflow relay output [DLA73] 2 x 5 A SPST relay output [DLA71 2P] 3 x 5 A SPST relay output [DLA71 3P, DLA73]

Timers

Timers are frequently used in a wide range of applications in automation, such as motor control centres, packaging machinery, HVAC equipment, control panels and process control systems. The Carlo Gavazzi timer portfolio is complete and offers solutions for different mountings (DIN-rail, panel or plug-in), functions (ON and OFF delay, interval, one-shot, recycler, star-delta) and output (SPDT, DPDT, 4PDT relay, or static output).

Delay on operation DAA/PAA	Delay on release DBA/PBA	True delay in release DBB/PBB	Star-delta DAC/PAC
			
• Mini-DIN, DIN-rail or plug-in housing • Time range 0.1 s to 100 h • Universal power supply • SPDT or DPDT relay output • Approvals: CE - UL - CSA - RINA	• Mini-DIN, DIN-rail or plug-in housing • Time range 0.1 s to 100 h • Universal power supply • SPDT relay output • Approvals: CE - UL - CSA	• Mini-DIN, DIN-rail or plug-in housing • Time range 0.1 s to 10 h • Universal power supply • SPDT or DPDT relay output • Approvals: CE - UL - CSA	• Mini-DIN, DIN-rail or plug-in housing • Time range 0.1 s to 600 s • Universal power supply • SPDT relay output • Approvals: CE - UL - CSA
Recycler DCB/PCB	Multifunction DMB/PMB	Multifunction DMC/PMC	Multifunction FAA/FMB
			
• Mini-DIN, DIN-rail or plug-in housing • Time range 0.1 s to 100 h • Universal power supply • 1x or 2x SPDT relay output • Approvals: CE - cULus	• Mini-DIN, DIN-rail or plug-in housing • 7 functions (0.1 s to 100 h) • Universal power supply • 1x, 2x SPDT or DPDT output • Approvals: CE - UL - CSA	• DIN-rail or plug-in housing • 7 functions (0.1 s to 100 h) • Remote time setting connections • NPN, PNP, Namur sensors input • 1x, 2x SPDT or DPDT output • Approvals: CE - UL - CSA	• Panel or plug-in mounting • 7 functions (0.02 s to 300 h) • Universal power supply • DPDT output • Approvals: CE - UL - CSA
Multifunction HAA	Mini-E EAS/EBS/ECS		
			
• Plug-in mounting • 4 functions (0.1 s to 100 h) • Universal power supply • DPDT or 4PDT output • Approvals: CE - UL - CSA	• DIN-rail or panel mounting • 3 functions (0.5 s to 10 m) • Extended power supply • Static output • Approvals: CE - UL - CSA		

Fieldbus - Dupline® and DuplineSafe

Dupline® is a field and installation bus that offers unique solutions for a wide range of industrial applications. The system is capable of transmitting multiple digital and analogue signals over several kms, via an ordinary 2-wire cable. Its modular design and simple operating principle enables it to be implemented easily in new or existing applications. Solutions can be engineered by combining products from the wide range of Dupline® modules, including digital and analogue I/O modules, PLC and PC interfaces, HMIs and Modems. All modules in an installation connect to the same 2-wire cable, which is used to exchange data between modules and between a central controller and modules.

Channel generator	Fieldbus gateways	Digital input modules - DIN	Analogue input modules - decentral
			
- Generates Dupline® carrier signal - Up to 128 Dupline® channels 2 and 3-wire operation with DC-power on the 3rd wire - All Dupline® protocols are supported 24 VDC power supply - Dimensions: 2-DIN housing	- Gateways for Profibus-DP, Devicenet, Modbus-RTU, Modbus/TCP - Built-in channel generator - Split I/O option - AC and DC power supply - DIN-rail mounting	- Contact and voltage input modules - Relay and solid state output modules - Bus-powered types - AC and DC power supply - DIN and decentral mounting	4 universal analogue inputs or outputs - Types: 0-20 mA, 4-20 mA or 0-10 V - Galvanically isolated inputs - AC and DC power supply - Dimensions: 4-DIN housing
Repeaters	Programming and test units	DuplineSafe output module	DuplineSafe input module
			
- Repeater for extending the Dupline® transmission distance - Optical repeaters allow part of the Dupline® system to run on multimode fibre - Dimensions: 4/8-DIN housing	- Programming tool for assigning addresses to Dupline® modules - Test unit for monitoring and control of Dupline® channels - Handheld - Battery / bus powered	- Configurable safety relay - Monitors up to 63 safety switches connected via Dupline® - Force guided contacts - TUV approved for SIL3 - Dimensions: 8-DIN housing	- Input module for E-stops and safety pull cords - Transmits dynamically on two Dupline® channels - TUV approved for SIL3 - Powered from the bus - Dimensions: 57 x 36 x 16 mm
DuplineSafe gateways	DuplineSafe repeater	DuplineSafe optical converter	DuplineSafe programmer
			
- Profinet, Profibus-DP and Modbus-RTU gateways for DuplineSafe monitoring - Can also monitor and control standard Dupline® signals in the same system - Dimensions: 8-DIN housing	- Repeater for extending the DuplineSafe transmission distance - Isolation between primary and secondary Dupline® - Can be cascaded - Dimensions: 8-DIN housing	- Optical repeaters allow part of the DuplineSafe system to run on multimode fibre - Electrical-to-optical and optical-to-electrical units - Dimensions: 4-DIN housing	- Optical repeaters allow part of the DuplineSafe system to run on multimode fibre - Electrical-to-optical and optical-to-electrical units - Dimensions: 4-DIN housing

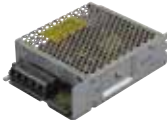
Safety

Carlo Gavazzi's range of safety modules includes modules for light curtains, safety mats, two hand control (anti-tie down devices), magnetic and safety switches and emergency stops. They are suitable for use in applications up to Performance Level "e" and Safety Integrity Level SIL 3. We also offer extension units which can be used to increase the number of safety outputs. Our safety modules are cUL and TUV approved. Our modules are powered by 24 VAC/DC and feature LED status indicators.

SMS20/SMS31 Emergency stop	SMSA31 Safety gates	SM2H21 Two hand control	SMS20 Lift levelling
			
- Emergency stop and safety gate modules up to Performance Level "e" for category 0 emergency stops 2 NO safety outputs (SMS20) or 3 NO safety outputs plus 1 NC auxiliary (SMS31) with automatic, manual and monitored manual start - Detachable screw terminals	- Safety gate modules, with antivalent function, up to Performance Level "e" for safety magnetic switches 3 NO safety outputs plus 1 NC auxiliary with automatic, manual and monitored manual start - Detachable screw terminals	- Safety module, up to Performance Level "e", for Two-hand controls Type IIIC (EN 574) - For high risk applications such as presses and punches - Detachable screw terminals	- Designed to be used in lift plants for floor levelling of the cabin. - Compliant with standards EN 81-20, EN 81-50 2 NO safety outputs - Detachable screw terminals
SME41 Expansion modules	Multifunction module delayed outputs	Multifunction modules instantaneous outputs	NLG Light curtains
			
- The expansion module is used to increase the number of safety outputs, up to Performance Level "e" 4 NO instantaneous relay outputs plus 1 NC auxiliary output for feedback - Detachable screw terminals	- The device can be connected with different types of input: E-stop, E-gate, limit switch, non-contact switch, safety light curtains (ESPE Type 4, Type 2), safety light beam (single beam), safety mat 2 x OSSD direct + 2 x OSSD delayed - Selectable delay time. Can be easily set-up through the hex-switch, from 0 to 30 sec.	- The device can be connected with different types of input: E-stop, E-gate, limit switch, non-contact switch, safety light curtains (ESPE Type 4, Type 2), safety light beam (single beam), safety mat 3 x OSSD (NO) + 1 OSSD Auxiliary (1 NC) (CM30D1A) or 4 x OSSD (NO) (CM40D0A) 4 LEDs on the front panel indicate the status and any errors during operation	- Control Electro Sensitive Protective Equipment (ESPE) with static PNP or relay outputs reaching Performance Level "e" 2 NO safety outputs (NLG02) or 3 NO safety outputs plus 1 NC auxiliary (NLG13) with automatic/manual or monitored manual reset version - Fixed or detachable screw terminals
Configurable master module	Speed monitoring modules	I/O Expansion modules	
			
- Configurable Master safety controller - Simultaneous monitoring of several safety devices and commands 8 digital safety inputs 2 OSSD digital safety output pairs 4 Test outputs and 2 programmable status outputs and separate EDM and Start/Restart	- The modules allow the configuration of up to 4 speed thresholds for each logic output (axis) - Each module integrates two logic outputs configurable via the MSD and is therefore capable of controlling up to two independent axes - RJ45 for encoder connections and terminal blocks for connection of proximity (up to 2 proximity per module)	- I/O module: 8I + 20 + 4 test outputs and 2 programmable status outputs - I + Test O module: 12I + 8TO and separate EDM and Start/Restart - Input only modules: 8/16 safety inputs + 4 test O - Output only modules: 2/4 OSSD and separate EDM and Start/Restart - Relay Output modules: different versions with NO and NC configurations	

Power supplies and UPS

Carlo Gavazzi presents a complete range of power supplies and battery chargers for both the automation industry and building automation. These are available in 3 different types: cabinet DIN-rail mounting, low profile DIN-rail mounting for electrical distribution panels and enclosed type. Power supplies are also available with DC, 1-phase, 2-phase and 3-phase inputs. Output voltages range from 5 to 48 VDC, with output powers from 15 W to 800 W. Battery chargers are 120 W, and available in 2 voltages: 12 V and 24 V.

SPDE DIN-rail 1-phase power supplies	SPDE R DIN-rail 1-phase power supplies	SPDE DIN-rail 2-phase power supplies	SPDE DIN-rail 3-phase power supplies
			
- From 75 to 240 W output power 1-Ph 90V to 264 VAC or 120V to 370VDC input voltage - Adjustable output - Screw terminals - DC OK indication - CE - UKCA - cULus - cURus	- From 120 to 480 W output power 1-Ph 90V to 264 VAC or 120V to 370VDC input voltage - Adjustable output - Screw terminals - DC OK indication - Available with PFC and DC OK output relay - CE - UKCA - cULus	- From 120 to 240 W output power 2-Ph 180 VAC to 600 VAC, 2-Ph 254 VDC to 848 VDC, - DC OK indication - PFC 240 W - CE - UKCA - cULus	- From 240 to 480 W output power 3-Ph 320 VAC to 600 VAC / 3-Ph 450 VDC to 850 VDC - DC OK indication - PFC 480 W - Parallel operation switch (only 3Ph 480 W) - CE - UKCA - cULus
SPDC - DIN-rail 1-phase power supplies	SPDM - DIN-rail 1-phase power supplies	SPMA - Low profile DIN-rail power supplies	SPME - Low profile DIN-rail power supplies
			
120 W and 480 W output power 85 to 264 VAC or 127 V to 375 VDC input voltage - Available with PFC - Compact dimension - Parallel connection output - DC OK indication - CE - cULus - cURus	120 W to 240 W output power 90 VAC / 264 VAC or 127 V to 370 VDC input voltage - Compact dimensions - Adjustable output - DC OK indication - CE - cULus - cURus	- From 12 to 100 W output power, 85 or 264 VAC or 120 to 350 VDC input voltage - Overvoltage, Overload and Short circuit protection - Compact dimension 4 kV insulation, UL Class 2 output - CE - UKCA - cULus - cURus - UL 1310 Class 2 UL ISA 12.12.01 Class I Div2	- From 15 to 100 W output power, 85 or 264 VAC or 120 to 370 VDC input voltage - Overvoltage, Overload and Short circuit protection - Compact dimensions 4 kV insulation, Over Voltage Category III - CE - UKCA - cURus
SPPC Enclosed type 25 W ~ 75 W	SPPC FC Enclosed type 150 W ~ 800 W	SPUBC - 120 W 24 VDC UPS & power supply	SPUBAT24 DIN-rail battery bank 1.2 to 12 Ah
			
90 V to 264 VAC or 127 to 370 VDC input voltage - Wide operating temperature -25°C to 70°C - Conformal coated PCB - Cooling fan w/ speed control - Adjustable output - CE - cURus	90 V to 264 VAC or 127 to 370 VDC input voltage - Wide operating temperature -25°C to 70°C - Conformal coated PCB - Cooling fan w/ speed control - Adjustable output - Available with PFC - CE - cURus	12 - 24 V power supply, Battery Charger and UPS - Smart battery diagnostics and Charge management - For batteries up to 50 Ah - DIN-rail mounting - CE - UKCA - cURus	- Stainless steel battery rack for UPS and battery chargers 24 V VRLA Battery bank - Front panel screw terminals for easy connection - DIN-rail or wall mounting - Built-in easily replaceable fuse - CE

Digital panel meters

Carlo Gavazzi offers a comprehensive range of digital panel meters, digital displays (for current meters, ammeters, voltmeters, frequency meters, temperature meters and temperature controllers, tachometers, and rate meters) and signal conditioners for OEM, panel builder, instrumentation and MRO customers.

Covering most input types, our digital panel meters are well suited to any display requirements. With the modular types it is possible to realize any sort of configuration and the analogue signal can also be retransmitted to show the readings. The displayed colour can be set to change at specific thresholds, allowing any type of anomaly to be easily seen.

HMI displays BTM series	Modular indicator/ controller UDM35	Modular indicator/ controller UDM40	Modular controller USC
			
• 7", 10" and 15.6" colour HMI displays • Fully programmable by the dedicated BTM-PC-IDE software • IIoT data distribution via MQTT and OPC UA • BACnet, Modbus and KNX protocols with gateway/routing capabilities • Ethernet, serial and USB ports	• 3½ DGT LED • AC/DC V-I, Temperature and Resistance, Speed, Frequency and Period measurement • Up to 4 independent alarm set-points, 20 mA/10 VDC analogue output • RS485 or RS232, MODBUS RTU • Panel mounting • Degree of protection: IP67, NEMA12, NEMA4x	• 4 DGT LED • AC/DC V-I, Temperature and Resistance, Speed, Frequency and Period measurement • Up to 4 independent alarm set-points, 20 mA/10 VDC analogue output • RS485 or RS232, MODBUS RTU • Panel mounting • Degree of protection: IP67, NEMA12, NEMA4x	• Modular signal's conditioner • AC/DC V-I, Temperature and Resistance, Speed, Frequency and Period measurement • Up to 4 independent alarm set-points, 20 mA/10 VDC analogue output • RS485 or RS232, MODBUS RTU • DIN-rail mounting • Degree of protection: IP20
Indicator/controller LDI35	Indicator/controller LDM35H	Indicator LDM30	Indicator DI3-DIN
			
• 3½ DGT LED or 3 DGT LED + "0" dummy μP-based • AC/DC V-I, Temperature and Resistance • 1 independent alarm set-point • 48 x 96 mm • Panel mounting • Degree of protection: IP50 (IP65 on request)	• 3½ DGT LED • AC/DC V-I • Up to 2 independent alarm set-points • 48 x 96 mm • Panel mounting • Degree of protection: IP65	• 3 DGT LED + "0" dummy μ-based • AC V-I • Dip-switch-selectable ranges • 48 x 96 mm • Panel mounting • Degree of protection: IP50 (IP65 on request)	• 3 DGT μP-based • AC/DC V-I, Frequency • 20 Selectable CT/VT primary range • 3-DIN modules • DIN-rail mounting • Degree of protection: IP40
Indicator DI3-72			
			
• 3 DGT μP-based • AC/DC V-I, Frequency • 18 Selectable CT/VT primary range • 72 x 72 mm • Panel mounting • Degree of protection: IP50 (IP65 on request)			

Industrial relays and sockets

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

These are available in plug-in and PCB mounting. Many of the relays come as standard with a push-to-test button as well as a LED indicator. Carlo Gavazzi relays are frequently used in control panels, in HVAC control systems, pump and compressor control and electronic and consumer products. They are typically used to switch loads such as heaters, lights and motors. Carlo Gavazzi also offers a complete range of sockets (DIN-rail mounting) for industrial and PCB relays.

Industrial RCP	Midi industrial RPY	Midi industrial RMI	Power NF/NB
			
• 8 or 11-pin socket mounting • 2 or 3 change-over contacts • Matching sockets available • AC coils 6 to 230 VAC/DC coils 6 to 110 VDC • Standard with LED, Push arm and Flag	• High switching power • 10 or 16 A switching capacity • 1 or 2 or 3 or 4 pole configuration • DC coils from 6 to 110 V/AC coils from 6 to 230 V • Flanged pins 5 mm (0.20")	• High switching power • Contact rating 10 A [RMI2] 5 A [RMI4] • 2 pole [RMI2] 4 pole [RMI4] configuration • AC coils 6 V to 230 V/DC coils 6 to 110 V • Standard with LED, Push arm and Flag	• Switching capacity 30 A • DC coils 6 to 110 VDC / AC coils 12 to 240 VAC • 1 or 2 normally open contact • Faston terminals [NF] / PCB terminals [NP] / Bolt terminals [NB]
Power CF/CS	Slim RSLM	Slim industrial RPYS	Slim sockets ZPYS
			
• High switching power • Switching capacity 30 A • 2 normally open contacts, 2 change over contacts • DC coils from 5 to 110 V / AC coils from 24 to 277 V • Faston terminals / PCB terminals	• 5 mm width • Switching capacity 6 A • 1 normally open contacts or 1 change over contact • DC coils from 12 to 60 V • PCB terminals	• Slim Relay solution • 8 or 12 A switching capacity • 1- or 2- pole configuration • DC coils 12 - 24 V, AC coils 24 - 115 - 230 V • UL 508 cURus	• Sockets for RPYS relays • Rated voltage 300 VAC • Rated current 16 A • Screw and Push-in terminals • Pre-mounted solutions with Relay + Socket + Clamp
Sockets ZPD	Sockets ZMI	Sockets ZPY	Sockets ZRLS
			
• Sockets for RCP relays • Rated voltage 300 VAC • Rated current 10 A • Terminal type screw cage • Contact material nickel plated - CuZn33	• Sockets for RMI relays • Rated voltage 300 VAC • Rated current 10 A • Terminal type screw cage • Contact material Cu Ni	• Sockets for RPY relays • Rated voltage 300 VAC • Rated current 16 A • Terminal type screw cage • Contact material nickel plated - CuZn33	• Sockets for RSLM relays • Rated voltage up to 250 VAC • Rated current 6 A • Screw terminals or spring terminals • Options: various AC/DC voltage inputs

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