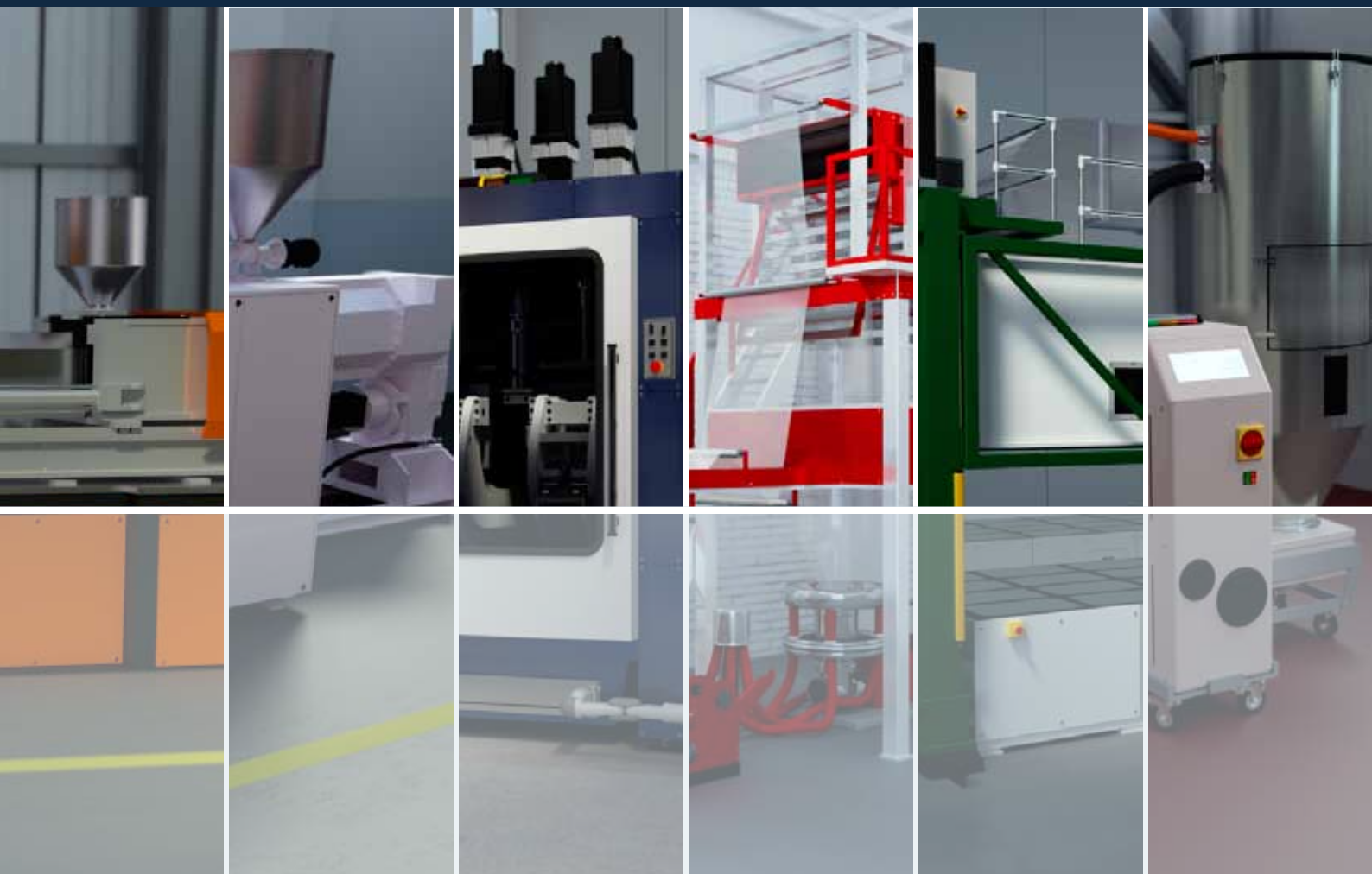


Solutions

Plastics Machinery

Plastics Machinery

Solutions for



Injection machines

Extrusion machines

Blow moulding machines

Blown film extrusion machines

Thermoforming machines

Plastic dryers & Dosing systems

ABOUT CARLO GAVAZZI

Carlo Gavazzi Automation is a multinational electronics group active in designing, manufacturing and marketing of electronic equipment targeted at the global markets of industrial and building automation.

Our history is full of firsts and our products are installed in a huge number of applications all over the world. With more than 80 years of successful operation, our experience is unparalleled.

We have our headquarters in Europe and numerous offices around the world.

Our R&D competence centres and production sites are located in Denmark, Italy, Lithuania, Malta and the People's Republic of China.

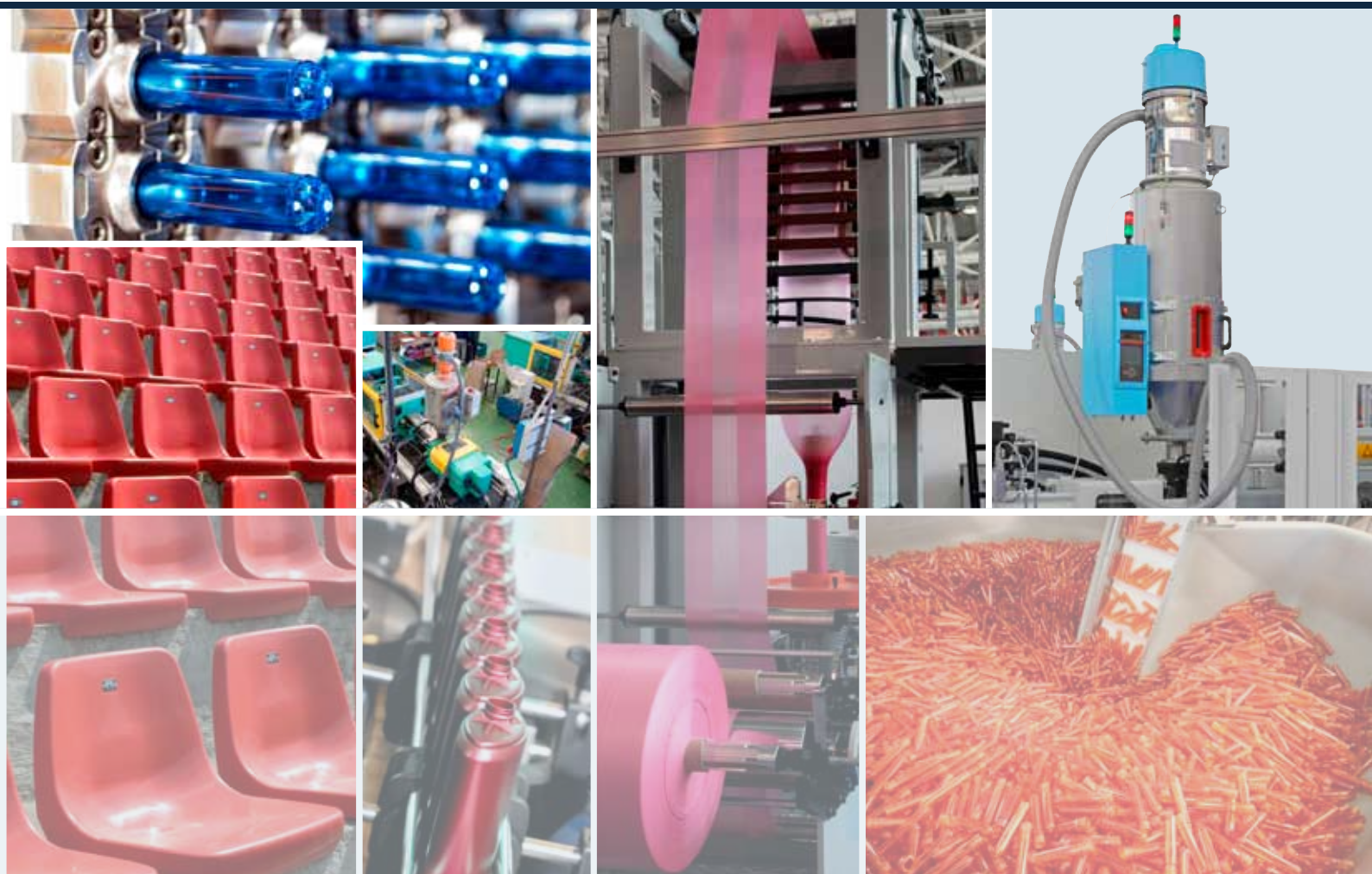
We operate worldwide through 22 of our own sales companies and also selected representatives in more than 65 countries, from the United States in the West to the Pacific Rim in the East.

Our core competence in automation spans four product lines: Sensors, Switches, Controls and Fieldbuses.

Our wide array of products includes sensors, monitoring relays, timers, energy management system, solid state relays, safety devices and fieldbus systems.

We focus our expertise on offering state-of-the-art product solutions in selected market segments.

Our customers include original equipment manufacturers of packaging machines, plastic-injection moulding machines, food and beverage production machines, conveying and material handling equipment, door and entrance control systems, lifts and escalators, as well as heating, ventilation and air-conditioning devices.



DESIGNED TO MEET MARKET REQUIREMENTS

The rising demand for processed food and beverages, followed by increasing requirement for packaging, is driving overall growth in the plastics machinery applications.

Accuracy, reliability and energy efficiency are becoming more and more important. Extrusion equipment has seen an interesting growth, with an increase in the demand for extruded goods. Injection moulding machines are used in a wide range of applications, ranging from automotive components to consumer goods.

The production efficiency of the machines for plastics has continuously increased over the last few decades. Appropriate temperature control is essential to ensure

good quality of the final outcome.

The thermal stability necessary in such machinery can only be achieved through the use of solid state relays (SSRs) which are capable of meeting the demands for fast heater switching.

Carlo Gavazzi offers a comprehensive range of SSRs which feature back to back thyristors in combination with direct copper bonding technology for increased lifetime and reliable operation of the SSR.

Carlo Gavazzi's patented Tripleshield™ capacitive sensors have become the standard all other manufacturers are measured against. Capacitive sensors will detect most materials, conductive and non conductive. This makes them ideal for level detection in raw plastic delivery systems. Carlo Gavazzi's ultrasonic, photoelectric

and inductive sensors are also used extensively in plastics machinery.

In order to protect the working area, ensuring the safety of operators and the safe operation of the machines, Carlo Gavazzi provides its safety light curtains, in conjunction with configurable and standard safety modules and safety magnetic sensors.

The CERTUS configurable safety module offers up to 128 inputs and 16 pairs of programmable solid state outputs in a compact modular system, managing and monitoring, at the same time, safety sensors and commands, safety light curtains, photocells, emergency stops, two-hand controls, mechanical switches, laser scanners and safety mats.

Plastics Machinery

Injection machines



Solid state switches

**RGS1A
RGC1A
RM1A**



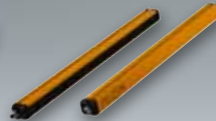
Capacitive sensors

**CA18
CA30
EC30**



Safety magnetic sensors

**SMS
CLS**



Safety light curtains

**SC2
SC4**



Configurable safety modules

CERTUS



Safety modules

**NES
NLG**

Process stability is critical to ensure high product quality. Stable temperatures are achieved by constant switching. Carlo Gavazzi solid state switches provide extremely reliable solutions that permit the fast switching needed in these processes. The RGS1 series and RM1 series are 1-phase solid state solutions which can be mounted on a chassis or an external heatsink, whilst the RGC1 series is provided with an integrated heatsink, hence ready for use. The integrated over voltage protection and high surge current capability of Carlo Gavazzi SSRs ensure trouble free operation, preventing unnecessary machine stoppages which result in scrap material and high down time costs.

Carlo Gavazzi's standard safety modules are used with safety light curtains, safety photo sensors, emergency stop buttons or safety magnetic switches.

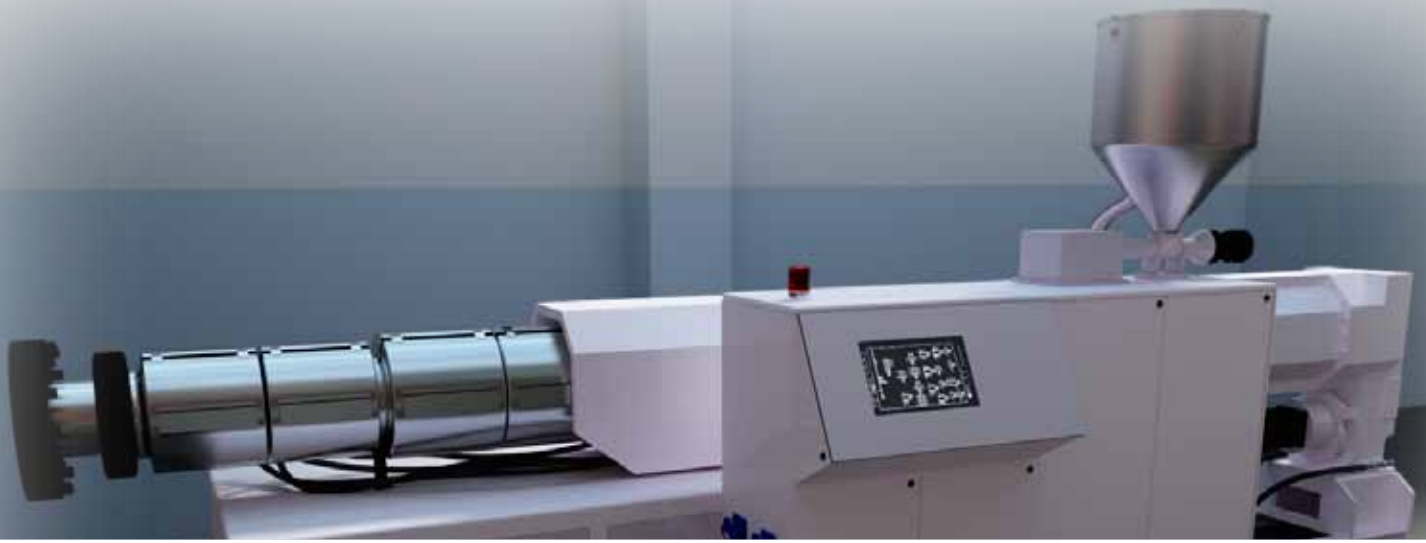
In plastics machines, the gates must often be opened under safety conditions: the standard NES modules enable the opening of the press motor mains when the gates are open.

For applications that require flexible logic or the multiple coordination of 3 or more safety devices, the CERTUS configurable safety module delivers a superior product vs its competitors, in terms of features and competitive price. CERTUS is certified to the highest safety levels: SIL+, SILCL 3, PLe and

Cat.4; it offers intuitive and quick logical configuration software, easy to set-up tamper proof safety systems, and a reduction in components and wiring.



Extrusion machines



Solid state switches

**RGC1A
RGS1A
RM1A**

Solid state switches

**RGC1S
RGS1S**

Solid state contactors

**RGC3A
RGC2A**

Capacitive sensors

**CA18
CA30
EC30**

Ultrasonic sensors

**UA18
UA30**

Switching power supplies

**SPD
SPPC
SPDM**

Consistency and repeatability of extruded parts can only be ensured if the temperature control process is stable with minimum deviations from set points. Deviations from temperature set points are limited with fast switching of heaters which can only be done through solid



state relays. Carlo Gavazzi offers a wide range of solid state solutions for temperature control of the barrel zones. The RGC1, RGS1 and RM1 series are 1-phase solutions, whilst the RGC3 series provides 3-phase switching solutions. The RM and RG series meet the industry EMC immunity requirements without the need for additional external components. Additionally, the RG series utilises wire bonding technology that reduces the thermal stress of the solid state switch, guaranteeing extended lifetime over other SSRs. The RGC1S and RGC3..M versions integrate detection for malfunction of the load or the SSR, where an alarm output

is readily available for immediate intervention.

Capacitive, photoelectric and ultrasonic sensors are used to detect any interruption in the extruded pipe. They ensure prompt intervention in the case of interruption and round-the-clock monitoring of the extrusion process.

In both injection machines and extrusion machines, Carlo Gavazzi's switches and sensors ensure smooth and efficient production processes, capacitive sensors in particular are widely used in silos.

Plastics Machinery

Blow moulding machines



Solid state switches

RGC15
RGS15
RGC1A

Inductive sensors

ICB12
ICB18
ICB30

Photoelectric sensors

PA18

Monitoring relays

DIA53
DPA51

Web server

VMU-C EM

Safety light curtains

SC2
SC4

Reliable thermal process control is key in determining the quality of the final outcome in blow moulding. An accurate thermal process can only be guaranteed by continuous monitoring of the load and system parameters. The RGC15 series offers the ideal solid state switching solution. The RGC15 is equipped with integrated current measurement and so is able to detect variations in load current, which will ultimately affect temperature. The integration of current measurement within the solid state switch eliminates the need for additional external monitoring and so gives panel space benefit as well as less installation time. The load current is continuously

monitored and if a deviation is observed a partial load failure alarm is issued. The RGC15 is also able to detect load and solid state switch malfunction. Photoelectric sensors and inductive sensors are installed along the machinery for part counting, detection and verification and for mould position detection. The VMU-C EM is a comprehensive web-based monitoring solution to keep track of energy consumption in industrial facilities and to improve the energy efficiency of the installation.



Blown film extrusion machines



Solid state switches

RGC1A
RGC1S
RGS1S

Ultrasonic sensors

UA18
UA30

Capacitive sensors

CA18
CA30
EC30

Safety magnetic sensors

SMS
CLS

Monitoring relays

DPA51
DIA53
DPD

Power transducers

CPT

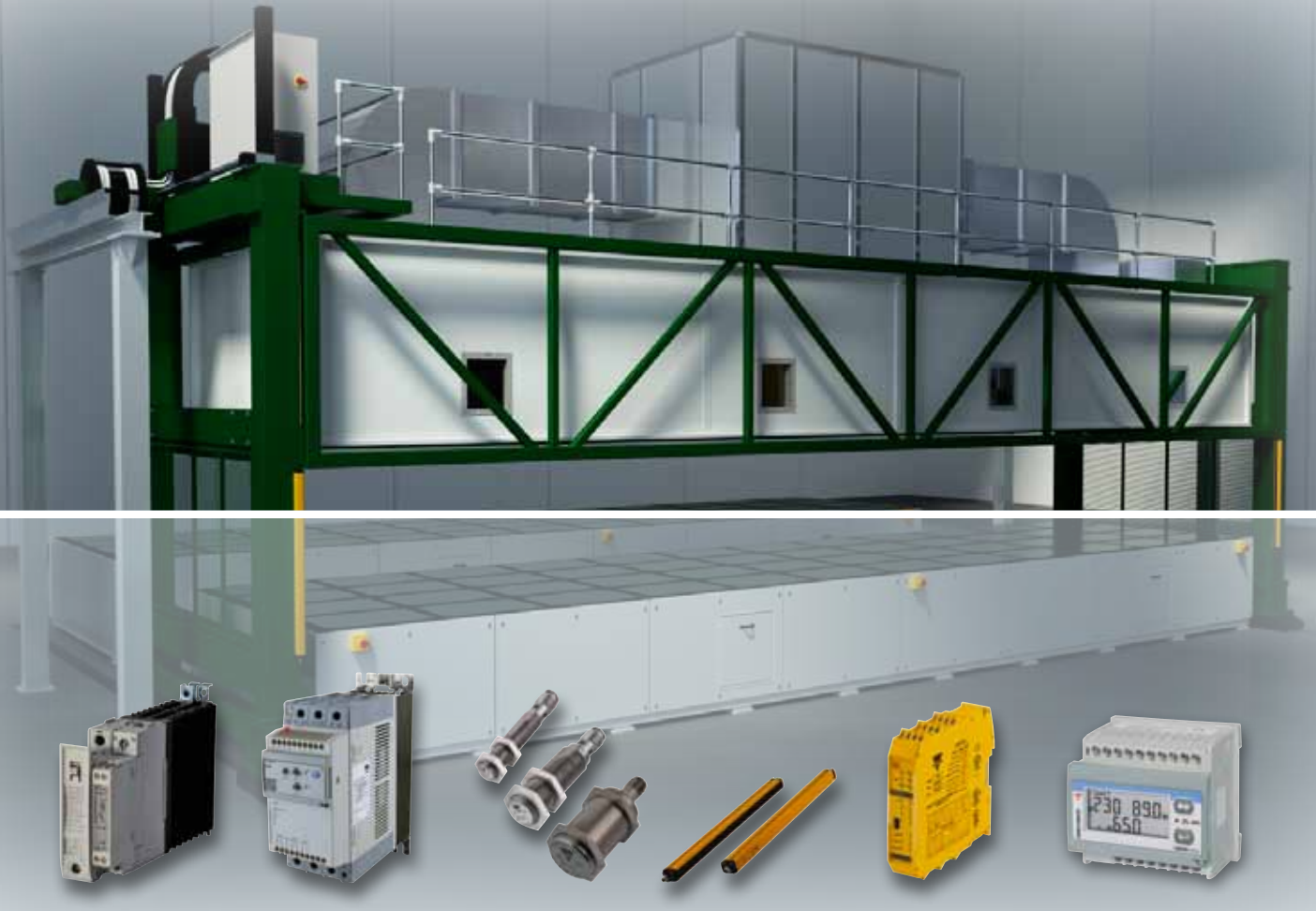


It is essential that plastics processing machines operate without breakdown. When the machine restarts after a breakdown, the material might also have to be scrapped: this is typical of blown film extrusion. By using an ultrasonic sensor to check film loop tension, film breakage is prevented and interruptions in the production cycle are minimized. Three ultrasonic sensors placed round the cylinder of blown plastic film, measuring the actual diameter of the cylinder, are used for controlling the air pressure and maintaining a controlled diameter and thickness of the plastic film. If the distance of the bubble surface from the machinery is not controlled,

dangerous contacts can occur. Several analogue ultrasonic sensors can be positioned to constantly check the size and the shape of the bubble. To monitor the ON/OFF switching of groups of the heating elements, a DIA53 monitoring relay can be used. This does not need any auxiliary power supply. It is supplied by the measured current, with a built-in current transformer up to 100 A. Furthermore, a CPT power transducer checks the electrical parameters vital for the motor, as a motor running in overload condition can suffer irreparable damage.

Plastics Machinery

Thermoforming machines



Solid state switches

**RGC1F
RGC1A
RGC1P**

Soft starters

**RSGD
RSWT**

Inductive sensors

**ICB12
ICB18
ICB30**

Safety light curtains

**SC2
SC4**

Configurable safety modules

CERTUS

Energy analysers

**EM210
EM26 96
EM24 DIN**

In thermoforming processes, heating is a critical phase. The plastic sheet needs to be evenly heated at the right temperature before entering the forming phase; failure to control the heat evenly and precisely results in a poor quality product.

The temperature is controlled via a temperature sensor and the signal is then sent to a controller. The control needs to be extremely efficient and so fast switching of the heaters is mandatory. This can only be done with the use of solid state relays.

A number of heating zones are used to ensure even heating. This requires a number of solid state relays to control all the heaters and panel

space is often a challenge. Carlo Gavazzi's new series of solid state contactors, the RGC1F, offer a compact solution which also integrates fuse protection. This solution is provided in the same footprint as a standard solid state relay, whilst freeing up space normally utilised for protection components. An integrated solution provides saving on installation time and costs. Inductive sensors placed in the mould, at the end of the pins, can detect whether the mould is properly sealed, enabling the system to start with a new injection process, thus preventing damage to the machinery, as well as improving

safety conditions. The new eco-friendly potting material of ICB sensors, allow higher resistance to shocks and vibrations.



Plastic dryers & Dosing systems



Solid state switches

**RM1A,
RK**

Solid state switches

**RGC1A
RGC2A
RGC3A**

Proportional controllers

**RGC1P
RGC2P
RGC3P**

Photoelectric sensors

PD30ET

3-phase power analysers

WM20

**Touch screen/
Datalogger**

**BTM-T4-24
BTM-T7-24**

Carlo Gavazzi components integrate into auxiliary equipment that is used in combination with plastics machinery, such as plastic dryers and dosing units, as well as stand-alone temperature control units for zone control. Wherever plastic granules are conveyed and processed, capacitive sensors monitor the levels in



pipes and in silos or through a viewing window in loaders of injection machines, extruders and blow moulding machinery. Thanks to Tripleshield™ technology, Carlo Gavazzi capacitive sensors are protected against disturbance caused by high ESD up to 40 kV. Featuring EMC and ESD immunity, Carlo Gavazzi sensors – EC and CA series - detect the level of plastic pellets in the hopper whilst withstanding environmental interference. The sensing face (flush mounted) withstands temperatures up to 120°C. The new PD30ET photoelectric sensors are ideal for industrial environments and work perfectly even in the harshest conditions. The high-quality stainless steel housing guarantees maximum mechanical

resistance. Retroreflective and polarized retroreflective versions are used to check the level of plastic granules in loaders. Additionally, heaters for the drying of the plastic granules can be switched with the RM1A or RGC1A for 1-phase heaters or the RGC2A, RGC3A for 3-phase heaters. The RGC1P, RGC2P and RGC3P series offers the possibility of controlling the switching of the heater with an analog input (0-10 V or 4-20 mA) which can be fed directly to the SSR. The touch screen BTM series reads the electrical measurement from Carlo Gavazzi energy meters or any other else energy meter. It shows the data as instantaneous values and/or depicts it in diagrams.

Plastics Machinery

Our product range

1-phase solid state relays



RAM1A / RM1A

- Dimensions 58.2 x 44.8 x 28.8 mm, panel mount
- Rated operational voltage: up to 660 VAC
- Rated current: 25 AAC, 50 AAC, 75 AAC, 100 AAC, 125 AAC
- Control input ranges: 4-32 VDC, 20-280 VAC
- Approvals/Marks: CE - cURus - CSA - CCC - VDE [RAM]

MAIN FEATURES

- Zero cross or Random switching
- Suited to resistive, inductive or capacitive loads
- Integrated output overvoltage protection [RM]

1-phase solid state switches



RGS1A / RGC1A

- Product width: 17.5 mm up to 70 mm, DIN or panel mount
- Ratings: up to 660 VAC, 90 AAC, 18000 A²s
- Integrated output overvoltage protection
- Control input ranges: 4-32 VDC, 20-275 VAC (24-190 VDC)
- Approvals/Marks: CE - cULus [RGC] - cURus [RGS] - CSA [RGS] - VDE - GL [RGC up to 30 AAC]

MAIN FEATURES

- Integrated heatsink [RGC1A], without heatsink [RGS1A]
- 100 kA short circuit current rating
- Optional overtemperature protection

1-phase solid state switches with current monitoring



RGS1S / RGC1S

- Product width: 17.5 mm up to 70 mm, DIN or panel mount
- Ratings: up to 660 VAC, 85 AAC, 18000 A²s
- Integrated output overvoltage protection
- Control input range: 4-32 VDC
- Approvals/Marks: CE - cULus [RGC1S] - cURus [RGS1S] - CSA [RGS1S]

MAIN FEATURES

- Partial load failure detection (1/6)
- Monitoring for SSR and load circuit malfunction
- TEACH by local push button or remote signal

1-phase solid state contactors



RGC1F

- Dimensions: 106 x 35.6 x 165 mm, DIN mount
- Rated operational voltage: up to 660 VAC
- Rated operational current: up to 40 AAC @ 40°C
- Control input range: 4.5-32 VDC
- Approvals/Marks: CE - cULus (up to 30 AAC)

MAIN FEATURES

- Integrated protection by semiconductor fuse
- Monitoring for SSR and load circuit malfunction [RGC1FS]
- 100 kA short circuit current rating

2-pole solid state relays



RK

- Dimensions 45 x 58 x 33 (44) mm, panel mount
- Independent control (RKD2..) or common control (RK2..)
- Ratings: up to 660 VAC, 50 AAC /pole, 75 AAC /pole
- Control input: 4-32 VDC
- Approvals/Marks: CE - cURus - CSA - VDE

MAIN FEATURES

- Integrated output overvoltage protection
- Pre-attached thermal pad
- Conformant to EN 60335-1

3-phase solid state contactors



RGC2A / RGC3A

- Product width: 54 mm up to 70 mm, DIN-rail mount
- Ratings: up to 660 VAC, 75 AAC/pole [RGC2A], 65 AAC/pole [RGC3A] @ 40°C
- Motor ratings: up to 11 kW @ 400 VAC, 25 HP @ 600 VAC
- Control input ranges: 5-32 VDC, 20-275 VAC (24-190 VDC)
- Approvals/Marks: CE - cULus

MAIN FEATURES

- 3-phase; 2-pole [RGC2A] or 3-pole switching [RGC3A]
- Monitoring for SSR and load circuit malfunction [RGC..M]
- 100 kA short circuit current rating

1 and 3-phase proportional controllers



RGC1P / RGC2P / RGC3P

- Product width: 35 mm up to 70 mm, DIN or panel mount
- 1-ph with heatsink [RGC1P] or for panel mount [RGS1P], 3-ph with heatsink [RGC2P, RGC3P]
- Ratings: up to 660 VAC, 90A (1-ph), 75A/pole (2-ph), 65A/pole (3-ph)
- Control input: 0-20 mA, 4-20 mA, 12-20 mA, 0-10 VDC, 0-5 VDC, 1-5 VDC
- Approvals/Marks: CE - cULus - UR [RGS1P] - CSA [RGS1P]

MAIN FEATURES

- Selectable switching modes
- Integrated overvoltage protection
- Monitoring for SSR and load circuit malfunctions [RGC2P, RGC3P]

3-phase pumps and ventilators soft starters



RSWT

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

MAIN FEATURES

- Easy to use and set up
- Self-learning algorithm to improve pump starts/stops
- Integrated overload protection (Class 10)

Our product range

3-phase general purpose soft starters	Capacitive sensors	Capacitive sensors	Photoelectric sensors
---------------------------------------	--------------------	--------------------	-----------------------



RSGD

- Operational voltage range: 187 - 440 VAC, 187 - 660 VAC
- Operational current range: 12 AAC up to 100 AAC
- Control voltage: 24 VAC/DC, 110 - 400 VAC
- Auxiliary relays for top of ramp and alarms
- Approvals/Marks: cULus, CCC, EAC

MAIN FEATURES

- Serial communication (Modbus 2-wire) [RSGD 75mm models]
- Easy to use and set-up
- Self-learning algorithm to adapt to different loads



EC30

- Triplshield™ sensor protection
- Dimensions: M30 mm
- Plastic, metal housing, DC and AC versions
- Approvals/Marks: CE - UL - CSA

MAIN FEATURES

- High EMC immunity
- Protection: short circuit, transient and reverse polarity



CA18 / CA30

- 4th generation Triplshield™ technology
- Dimensions: M18 / M30
- Plastic housings DC versions
- Sensing distance up to 30 mm
- Approvals/Marks: CE - cULus

MAIN FEATURES

- Highest EMC immunity
- ESD ratings up to 40 KV
- Sensing face temperature up to 120°C
- Best immunity towards Inverters



PD30ET

- World standard housing style 11 x 31.5 x 21 mm
- Supply voltage: DC 4-wire
- Sensing distance: < 15 m
- Output: NPN/PNP NO+NC
- Sensor types: D, B, R, P and T
- Connectivity: Cable or M8 connectors
- Approvals/Marks: CE - cULus - ECOLAB

MAIN FEATURES

- Stainless Steel housing AISI 316L
- Resistant to high-pressure washdown, aggressive cleaning agents.
- IP67, IP68, IP69K, NEMA type 1, 2, 4, 4x, 5, 6, 6P
- Protection: reverse polarity, short circuit and transients

Photoelectric sensors	Ultrasonic sensors	Inductive sensors	Safety magnetic sensors
-----------------------	--------------------	-------------------	-------------------------



PA18

- Dimensions: M18 x 39 mm
- Diffuse reflective sensors, 1 m detecting distance
- Cable or M12 plug versions
- Power supply from 10 to 30 VDC
- Approvals/Marks: CE - cULus

MAIN FEATURES

- Sensors used to detect the finished plastic items
- Fast mounting, smooth finish
- Sensitivity adjustment



UA18 / UA30

- Dimensions: M18, M30
- Ultrasonic sensors with integrated amplifier providing a digital and/or analog output and integrated amplifier
- Housing material: plastic
- Approvals/Marks: CE - cULus - CSA

MAIN FEATURES

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



ICB12 / ICB18 / ICB30

- M12, M18 and M30 Nickel-brass housing in short or long barrel lengths
- Standard, double and triple distance sensing ranges
- Output functions: NO or NC, NPN or PNP
- Two metres oil resistant PVC cable or M12 plug version
- Protection: reverse polarity, short circuit, transients

MAIN FEATURES

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



CLS / SMS

- Rectangular housing
- Connection: PVC cable or pigtail solution
- Housing material: Plastic
- Approvals/Marks: CE - cULus

MAIN FEATURES

- Multiple flux coding
- Several combinations of safety and auxiliary outputs available
- Operating temperature -25° to +70°C

Plastics Machinery

Our product range

Multifunction monitoring relays with NFC



DPD

- Dimensions: 22.5 mm DIN rail mounting enclosure
- 120 VAC to 480 VAC Delta & Star Mains
- Voltage and frequency monitoring
- 2 SPDT 8A relay outputs
- Approvals/Marks: UL, CSA and CCC

MAIN FEATURES

- NFC programming
- Up to 10 configurable setpoints
- Apps for Android and Windows PC programming

Monitoring relays



DPA51 / DPB51

- Dimensions: 81x17,5x67,2 mm DIN-rail housing
- Phase sequence and phase loss (DPA/DPB), Under/Over Voltage (DPB)
- 3 phase AC (own power supply); regenerated voltage
- Power supply from 208 to 480 VAC (+/- 15%)
- Approvals/Marks: UL, CSA and CCC

MAIN FEATURES

- Motors protection from reverse running and phase loss.
- Plug and play: no settings needed (DPA), easy setup (DPB)

Monitoring relays



DIA 53

- Dimensions: 81 x 17.5 x 67.2 mm DIN-rail housing with 12 mm hole for current measurement
- Current monitoring relay with built-in current transformer
- 20, 50 or 100 A full scale
- Self powered
- Approvals/Marks: UL - CSA - CCC

MAIN FEATURES

- 2 wire connection
- Knob adjustable setpoint
- Integrated solid state NPN PNP output

Energy analysers



EM210

- 3-phase energy meters with CT connection
- Solid or split-core 5A CT
- Dimensions: 4 DIN modules or 72x72 housing
- Class 1 (kWh) acc. to EN62053-1
- Class B (kWh) acc. to EN50470-3
- Pulse open collector or serial RS485 output

MAIN FEATURES

- Very compact and space saving meter
- Can be installed both on DIN-rail or on the panel
- MID annex D certification available

Energy analysers



EM24 DIN / EM26 96

- Dimensions: 4 DIN modules (EM24)
- Dimensions: 96 x 96 mm housing, only 45 mm behind the panel, (EM26 96)
- Current input up to 65 A (EM24)
- Primary current input: 5 A (EM96)
- Class 1 (kWh) acc. to EN62053-1
- Class B (kWh) acc. to EN50470-3
- Modbus communication port

MAIN FEATURES

- Direct measurement in a very compact housing to save space
- Suitable for measuring generated and consumed energy
- MID Annex D certification available

3-phase power analysers



WM20

- 96 x 96 mm panel mounting housing
- Accuracy 0.2 % (voltage, current)
- Class 0.5S (kWh)
- Universal power supply
- Front protection degree IP65, NEMA4X, NEMA12
- cULus approved

MAIN FEATURES

- Provides installation data to a SCADA to manage the whole system
- Modular housing to build the instrument according to the real application needs
- Modbus, Ethernet, Profibus, BACnet (IP and MS/TP) communication ports

Web server



VMU-C EM

- Micro PC with Web-server, FTP and Web-Service capabilities
- Data and event logging capability
- Internal 4GB memory and 16GB SDHC card back-up memory
- Variables shown as graphs and tables
- All data exports on Excel compatible files
- Management up to 32 Energy Meters and 11 remote I/O module groups

MAIN FEATURES

- Energy analysis of each single load
- Energy bill evaluation
- Virtual main meter
- Alarms control with automatic e-mailing and SMS management
- Universal mobile 3G modem available

Power transducers







CPT

- Dimensions: 83.5 x 45 x 98.5 mm DIN-rail housing
- Accuracy 0.5 % (voltage, current)
- Measurement by CT and VT
- Front protection degree IP20
- Analogue, digital, pulse or serial outputs available

MAIN FEATURES

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

Our product range

Touch screen/ Datalogger	Timers	Timers	Timers
 <p>BTM-T4-24 / BTM-T7-24</p> <ul style="list-style-type: none"> • 4" / 7" colour display • Easy setup of graphic pages and functions with the powerful software Wizard • Activation of internet links through touch buttons • Support viewing from IP cameras <p>MAIN FEATURES</p> <ul style="list-style-type: none"> • Ethernet connection • Wide screen display, 64 K colours • USB port, SD memory, Modbus RTU serial port 	 <p>DBB01 / PBB01</p> <ul style="list-style-type: none"> • Dimensions: 22.5 mm Euronorm for DIN-rail or 36 mm plug-in version • Multi voltage true delay on release timer • Combined AC and DC power supply • Repeatability: < 0.2% • Approvals/Marks: UL - CSA <p>MAIN FEATURES</p> <ul style="list-style-type: none"> • Time range 0.1 to 600s - capacitor powered • 4 time ranges selectable by DIP-switches, knob time setting • Output: 8 A SPDT or 8 A DPDT relay 	 <p>DCB01 / PCB01</p> <ul style="list-style-type: none"> • Dimensions: 22.5 mm Euronorm for DIN-rail or 36 mm plug-in version • Asymmetrical Recycler timer with 4 functions • Combined AC and DC power supply • Repeatability: < 0.2% • Approvals/Marks: UL - CSA <p>MAIN FEATURES</p> <ul style="list-style-type: none"> • Time range 0.1s to 100h • 4 time ranges selectable by DIP-switches, knob time setting • Output: 1 or 2 x SPDT relay 	 <p>DAA51 / DMB51</p> <ul style="list-style-type: none"> • Dimensions: 81 x 17.5 x 67.2 mm DIN-rail housing • Delay on operate function [DAA], multifunction [DMB] • Combined AC and DC power supply • Repeatability: < 0.2% • Approvals/Marks: UL - CSA - RINA <p>MAIN FEATURES</p> <ul style="list-style-type: none"> • Delay on operate/release; interval (manual/automatic start); • Double interval; symmetrical recycler (ON or OFF first) • Timing range from 0.1s to 100h
<p>1-phase DIN-rail power supplies</p>	<p>Metal enclosed power supplies</p>	<p>Low profile DIN-rail power supplies</p>	<p>Compact DIN rail power supplies</p>



SPD

- Output power from 5 W to 480 W
- Input 110/240 VAC single phase and DC
- Short circuit, overload and overvoltage protection
- PFC >100 W
- UL 1310 Class 2 output up to 90 W
- Approvals/Marks: cULus, TUV and CCC

MAIN FEATURES

- Power supply OK output
- Parallel connection feature
- Spring, screw terminals or detachable connectors



SPPC

- Output power from 15 W to 800 W
- Input 110/240 VAC single phase
- Short circuit, overload and overvoltage protection
- PFC function available >75 W
- Approvals/Marks: UL and CE

MAIN FEATURES

- Adjustable output +/- 10%
- Compact dimensions
- Wide operating temperature range up to 70°C



SPM

- Output power from 7.5 W to 100 W
- Input 110 / 240 V single phase and DC 120 to 370 V
- Short circuit, overload protection
- From -25 to +60°C operation w/out derating
- Approvals/Marks: cULus, TUV and CCC

MAIN FEATURES

- UL 1310 Class 2 output < 91 W
- Adjustable output +/- 10%
- Low voltage LED indication



SPDC 240W

- 24 VDC, 240 W Output
- 45 mm width, high compactness
- 94% maximum efficiency
- Operating temp from -25 to +70°C
- Universal input 90 VAC ~ 264 VAC / 127 VDC ~ 370 VDC

MAIN FEATURES

- DC OK relay output and LED indication
- PFC > 0.95
- Parallel connection selection switch

Plastics Machinery

Our product range

Compact DIN rail power supplies



SPDC 120W

- 12 or 24 VDC, 120 W Output
- 32 mm width, high compactness
- 91% maximum efficiency
- Operating temp from -25 to +70°C
- Universal input 90 VAC ~ 264 VAC / 127 VDC ~ 370 VDC

MAIN FEATURES

- DC OK relay output and LED indication
- PFC
- Parallel connection selection switch

Compact DIN rail power supplies



SPDM 120W

- 120 W Output Power
- 45 mm width, compactness
- 88% maximum efficiency
- Operating temp from -20 to +70°C
- Universal input 90 VAC ~ 264 VAC / 127 VDC ~ 370 VDC

MAIN FEATURES

- Metal enclosure
- DC OK LED indication
- 3 screw terminals each output pole

CERTUS configurable safety module



CMM

- 4 non-safety test outputs for sensor monitoring
- 2 non-safety programmable digital signal outputs
- 2 non-safety inputs for Start / Restart interlock and EDM
- LOG file with 5 configuration modifications
- Connection with other exp. units via rear bus

MAIN FEATURES

- Also usable as a stand-alone device, able to control any other expansion unit
- 8 safety digital inputs
- 2 safety OSSD pairs (400 mA Output)
- Certified to the highest safety levels: SIL 3, SILCL 3, PL_e, Cat. 4, CE, TUV, cULus

CERTUS configurable I/O expansion modules



C I/O

- Wide range of Input/Output, Input only or Output only (both OSSD and standard relay) expansion units to serve different application requirements
- Models offer a variety of non-safety Inputs/Outputs such as: inputs for Start/Restart interlock and EDM, test outputs

MAIN FEATURES

- The models offer eight combinations:
 - 8 Inputs 2 Outputs; 12 Inputs 8 test Outputs
 - 8 Inputs, 16 Inputs,
 - 2 OSSD, 4 OSSD
 - 2 relay Outputs, 4 relay Outputs

CERTUS speed monitoring modules



CES

- Exp. units to monitor speed (Ple): Zero speed, Max speed, Speed range Motion direction; rotation / translation.
- RJ45 for encoder connections and terminal blocks for connection of proximity (up to 2 proximity switches per module).
- Inputs frequency: Encoder up to 500 KHz (300 KHz for HTL), Proximity up to 5 KHz.

MAIN FEATURES

- The modules allow to configure up to 4 speed thresholds for each logic output (axis)
- Each module integrates two logic outputs configurable via the MSD and is capable to control up to two independent axes

CERTUS data and diagn. modules + bus transfer



DDC + CBT

- DDC: Allows communication with most common industrial fieldbus systems:
 - C PFBUS - Profibus DP,
 - C DNET - DeviceNET
 - C CAN - CANOpen,
 - C EIP - Ethernet IP
 - C ECAT - EtherCAT,
 - C PROFINET - PROFINET
 - C OMMS - Universal Serial Bus
- Bus Transfer: Interface module allowing the connection of remote expansions via bus

MAIN FEATURES

- Bus transfer: up to 100 m for each connection. Maximum 5 CBT expansions. Ideal solution for the interconnection of the safety functions of several machines in a production line

Safety light curtains



SC2 / SC4

- Dimensions: 36.9 x 32.3 mm in lengths from 300 to 1500 mm for type 2, and from 150 to 1650 mm for type 4
- 24 VDC supply with two PNP transistor Outputs
- IEC-61496-2 environment light rejection
- Approvals/Marks: CE - cULus

MAIN FEATURES

- Selectable Manual/Automatic Restart, EDM and Anti interference
- Compact body

Safety modules



NES / NLG Series

- Safety modules for gate and emergency stop [NES] and light curtain [NLG]
- 3 normally open safety outputs
- < 30ms response time
- IP40 protection for housing and IP20 protection for terminals
- Approvals/Marks: CE- UL -TÜV - cULus

MAIN FEATURES

- Safety category 4
- < 30 msec response time
- Performance Level PL_re in according with ISO 13849-1
- SILcl:3 in according with IEC 62061

OUR SALES NETWORK IN EUROPE

AUSTRIA

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

FRANCE

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

ITALY

Carlo Gavazzi SpA
Via Milano 13,
I-20020 Lainate
Tel: +39 02 931 761
Fax: +39 02 931 763 01
info@gavazziacbu.it

SPAIN

Carlo Gavazzi SA
Avda. Iparraguirre, 80-82,
E-48940 Leioa (Bizkaia)
Tel: +34 94 480 4037
Fax: +34 94 431 6081
gavazzi@gavazzi.es

BELGIUM

Carlo Gavazzi NV/SA
Mechelsesteenweg 311,
B-1800 Vilvoorde
Tel: +32 2 257 4120
Fax: +32 2 257 41 25
sales@carlogavazzi.be

GERMANY

Carlo Gavazzi GmbH
Pfnorstr. 10-14
D-64293 Darmstadt
Tel: +49 6151 81000
Fax: +49 6151 81 00 40
info@gavazzi.de

NETHERLANDS

Carlo Gavazzi BV
Wijkermeerweg 23,
NL-1948 NT Beverwijk
Tel: +31 251 22 9345
Fax: +31 251 22 60 55
info@carlogavazzi.nl

SWEDEN

Carlo Gavazzi AB
V:a Kyrkogatan 1,
S-652 24 Karlstad
Tel: +46 54 85 1125
Fax: +46 54 85 11 77
info@carlogavazzi.se

DENMARK

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

GREAT BRITAIN

Carlo Gavazzi UK Ltd
4.4 Frimley Business Park,
Frimley, Camberley, Surrey GU16 7SG
Tel: +44 1 276 854 110
Fax: +44 1 276 682 140
sales@carlogavazzi.co.uk

NORWAY

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

SWITZERLAND

Carlo Gavazzi AG
Verkauf Schweiz/Vente Suisse
Sumpfstrasse 3,
CH-6312 Steinhausen
Tel: +41 41 747 4535
Fax: +41 41 740 45 40
info@carlogavazzi.ch

FINLAND

Carlo Gavazzi OY AB
Ahventie, 4 B
FI-02170 Espoo
Tel: +358 9 756 2000
myynti@gavazzi.fi

PORTUGAL

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

OUR SALES NETWORK IN THE AMERICAS

USA

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

CANADA

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

MEXICO

Carlo Gavazzi Mexico S.A. de C.V.
Calle La Montaña no. 28, Fracc. Los Pastores
Nauclan de Juárez, EDOMEX CP 53340
Tel & Fax: +52.55.5373.7042
mexicosales@carlogavazzi.com

BRAZIL

Carlo Gavazzi Automação Ltda. Av.
Francisco Matarazzo, 1752
Conj 2108 - Barra Funda - São Paulo/SP
Tel: +55 11 3052 0832
Fax: +55 11 3057 1753
info@carlogavazzi.com.br

OUR SALES NETWORK IN ASIA AND PACIFIC

SINGAPORE

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

MALAYSIA

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

CHINA

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

HONG KONG

Carlo Gavazzi Automation
Hong Kong Ltd.
Unit 3 12/F Crown Industrial Bldg.,
106 How Ming St., Kwun Tong,
Kowloon, Hong Kong
Tel: +852 23041228
Fax: +852 23443689

OUR COMPETENCE CENTRES AND PRODUCTION SITES

DENMARK

Carlo Gavazzi Industri A/S
Hadsten

MALTA

Carlo Gavazzi Ltd
Zejtun

ITALY

Carlo Gavazzi Controls SpA
Belluno

LITHUANIA

Uab Carlo Gavazzi Industri Kaunas
Kaunas

CHINA

Carlo Gavazzi Automation (Kunshan) Co., Ltd.
Kunshan

HEADQUARTERS

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



CARLO GAVAZZI
Automation Components

Energy to Components!

www.gavazziautomation.com



BROCHURE PLASTICS MACHINERY ENG REV.05 05/17
Specifications are subject to change without notice. Illustrations are for example only.