

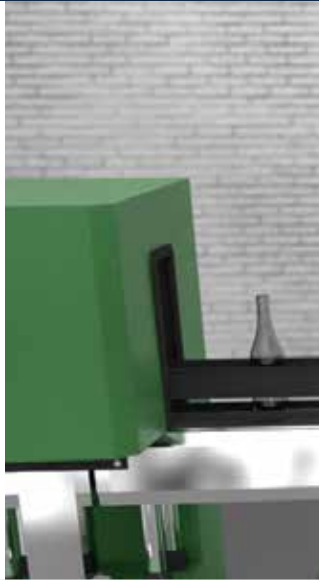


Solutions

Packaging Machinery

Packaging Machinery

Solutions for



Filling

Inspection

**Wrapping
and sealing**

Labelling

ABOUT CARLO GAVAZZI

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

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

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

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

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

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

Our wide array of products includes sensors, monitoring relays, timers, energy management systems, 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 materials 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 growing markets in consumer goods and packaged pharmaceuticals drive the development of packaging equipment. Filling and sealing machines, also labelling and coding devices, are important to ensure product safety throughout the supply chain.

To meet these needs, the industry has gradually introduced more automation and more sophisticated electronic controls.

In today's packaging production lines, the different stages are completed in minutes rather than in hours, as compared to years past.

In all types of packaging machinery - in all sectors of industry - each component must meet the strict requirements of the individual application.

This is to guarantee the continuity of production and the conformity of the packaged product to quality standards.

For many years, Carlo Gavazzi photoelectric, inductive and capacitive sensors have proven to be the best solution in applications for filling and checking.

In shrink wrapping applications, careful control of heating is essential for good results. Solid state relays are used to switch the heaters on and off in order to maintain the correct temperature.

The packaging industry also needs safety devices to guarantee the safety of the operators engaged in the work area, ensuring safe operation of the machines.

Carlo Gavazzi's comprehensive safety range includes products that detect intrusions within the non-safe zone/s and shut down the machinery in a controlled manner via standard and/or configurable safety modules.

Carlo Gavazzi products all offer easy installation, high precision and long term reliability.

Packaging Machinery

Filling



Photoelectric sensors

PD30ET
PD30C

Photoelectric sensors

PA18
PH18

Inductive sensors

ICB12
ICB18
ICB30

Ultrasonic sensors

UA18
UA30

Capacitive sensors

CA18
CA30

Capacitive level sensors

CD34CNF

Conductive level probes

CLH
CLD

Carlo Gavazzi offers a complete range of automation components for the packaging industry.

In a bottling line UA ultrasonic sensors are used to verify that the appropriate level of a product is in the container before it is sealed and shipped.

Ultrasonic sensors are also used to measure the level of ingredients – either liquid or solid – in a container. The continual analog output signal allows for better control of the process. The levels of solid material, such as ground coffee, coffee beans or flour, are accurately detected using photoelectric sensors.

The PA18/PH18 sensors come with a mounting bracket which allows

fast mounting and space saving. Axial, radial and square versions are available. An important benefit is that the conveyor can be cleaned much more easily.

For accurate control of the filling process, PD30 sensors provide an output signal when the product is at the appropriate fill level.

The PD30 stainless steel sensors are designed for wet as well as dry areas. The stainless steel housing and high-end plastic materials guarantee maximum resistance against IP69K and Ecolab cleaning processes.



Inspection



Photoelectric sensors

PD30ET
PD30C

Photoelectric sensors

PH18
PA18

Inductive sensors

ICB12
ICB18
ICB30

Ultrasonic sensors

UA18
UA30

Fiber optic amplifiers

FA1

Soft starters

RSGD

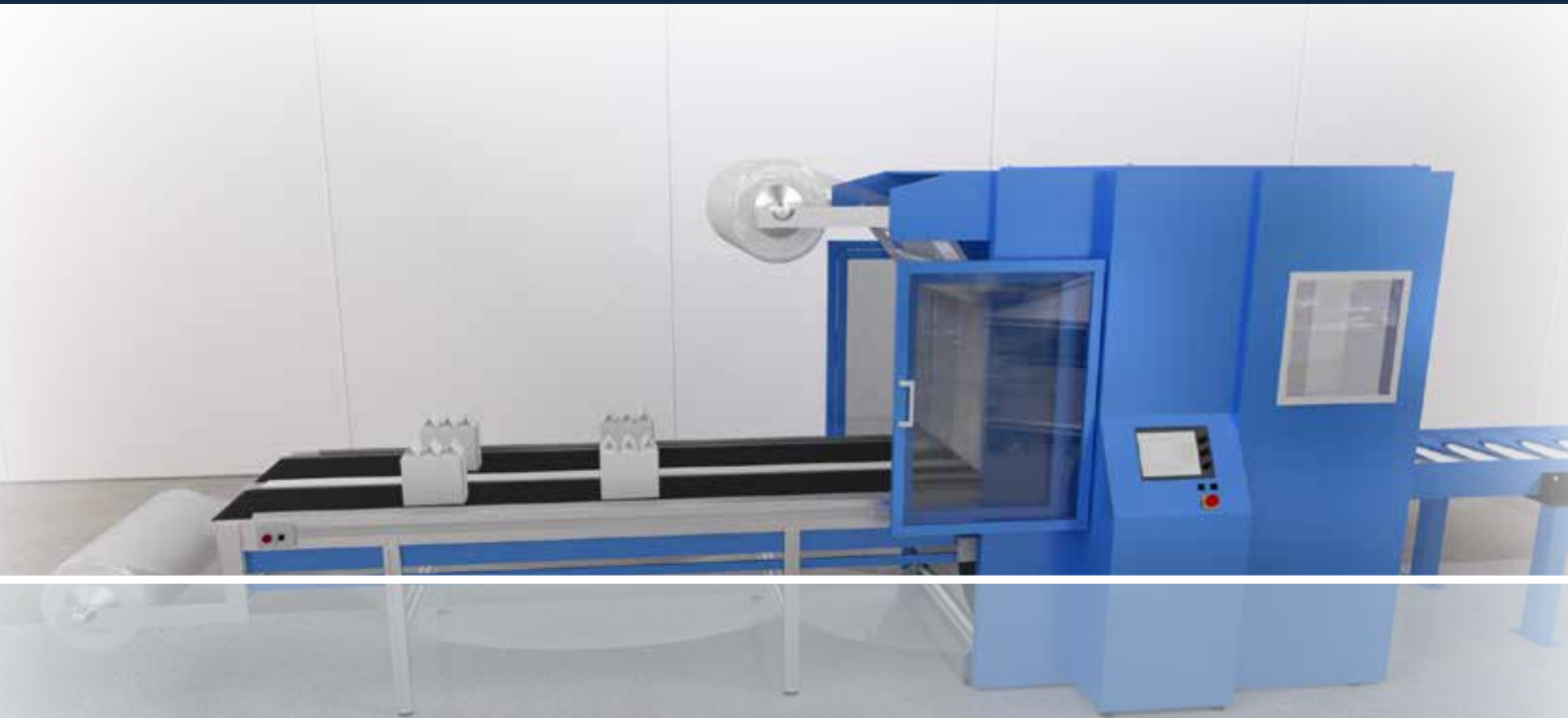


Carlo Gavazzi products have many applications in the inspection-detection field. For bottling lines that have darker or less transparent bottles, PA18 through beam sensors can be used to detect the presence of the bottles. This family of products is from 40 % to 60 % smaller than existing housings. The PD30 stainless steel (background suppression) sensors detect all colours on objects at the same distance from the sensor, and their durable design withstands daily cleaning processes. The specialised optics of the PD30CNG - combined with a reflector - are perfect for detecting clear bottles on a conveyor. In some confectionery applications, it is

necessary to detect if a cake decoration is present or properly positioned. The PD30 diffuse sensor recognises the decoration on top of the cake. The fiber optic amplifier FA1 and the series of fiber optic cables FUR & FUT offer even more flexibility for sensing. To verify that a bottle cap is present on the bottle a FA1 fiber optic amplifier with a fiber optic cable and lens are positioned above the bottles and programmed to detect the reflection from the bottle cap.

Packaging Machinery

Wrapping and sealing



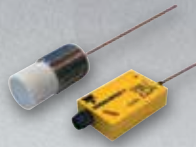
Photoelectric sensors

PD112



Photoelectric sensors

PD30CN



Capacitive sensors

ECH



Solid state switches

**RGS
RGC
RM**



Solid state switches

**RGC15
RGS15**



3-phase solid state contactors

**RGC3A
RGC2A**

Multiple bottles are often bundled together and shrink-wrapped. Carlo Gavazzi solid state relays (RM or RG series) allow fast switching of heaters that enable accurate control of the process temperature, thus maintaining an even shrink of the plastic wrap. Solid state solutions allow frequent switching without affecting the lifetime of the switch, unlike mechanical contactors. In order to verify that the shrink-wrap has been added, a PD30CNG clear object sensor is positioned to focus on the level of the bottle necks. If the shrink-wrap is present, the clear object sensor will have a continuous output as the package passes by.

Diffuse reflective photoelectric sensors with long detecting distance (PD112)

detect goods on a pallet to ensure that wrapping is stopped at the required height.

In hot-melt heating systems the high temperature ECH sensors have proven their capability and reliability.

Other applications include automatic continuous processes of thermoforming,

filling and sealing. The RG range offers a wide variety of solutions, starting from solid state switching of heaters to more sophisticated solutions that, apart from the switching function, integrate monitoring features that are able to detect load and system malfunctions to guarantee a reliable thermal process.



Labelling



Fiber optic amplifiers

FA1

Once a container is filled, the next step is to apply the appropriate label. A fiber optic amplifier FA1 is used to detect the presence of a mark on a bottleneck label, which confirms that the bottle is in the correct position for the main label to be applied. These sensors also detect the presence

Photoelectric sensors

PC50

of security bands which are required on many bottles and containers. They recognise the difference between the security band and the bottle cap. The FA1 is compact and highly intuitive for easy setup. It is equipped with two 4-digit LED displays for clear and concise reading. An adjustable signal

Photoelectric fork sensors

PF80

level, selectable response time and different timer functions provide full flexibility. Coupled with the robust and complete range of fiber optic cables FUR & FUT, this amplifier can be used in many applications.

Detection of labels, marks and double sheets, as well as holes and edges, are typical applications for the PF80 fork sensor.

Precise control of all labels is an important part of the packaging process. The surfaces of the labels are often reflective and the photoelectric proximity sensors provide the necessary sensitivity for maximum reliability.

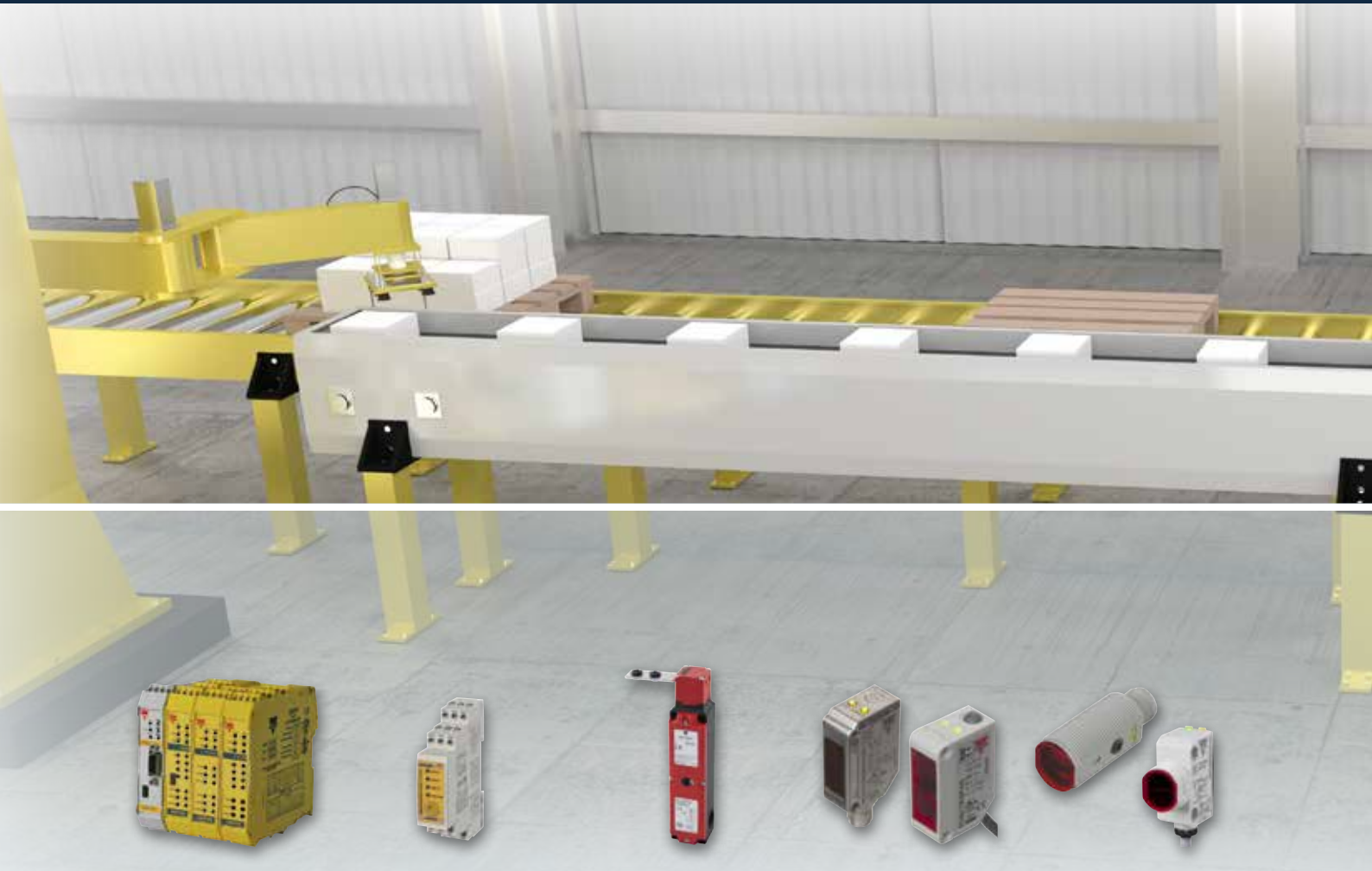
Timers

**DAA51
DMB51**



Packaging Machinery

Our expertise



**Certus
configurable
safety modules**

CERTUS

**Certus
multifunction
safety module**

**CM22DOA
CM40DOA
CM30D1A**

**Electromagnetic
safety interlocks**

ESI

**Photoelectric
sensors**

**PD30ET
PD30C**

**Photoelectric
sensors**

**PA18
PH18**

Carlo Gavazzi's safety devices are used to prevent access to dangerous areas, until the machines are completely stopped. For example, 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 such as: safety light curtains, photocells, emergency stops, two-hand controls, mechanical switches, laser scanners and safety mats.

Protection of the operators from dangerous moving parts of the machine is ensured by using our safety module CM22DOA, able to monitor multiple safety functions of industrial machinery.

With the configuration of the right delay time, by means of the hex-switch, and in combination with our electromagnetic safety interlock ESI, we can guarantee the safety of the operator, as the machinery remains operative for a short time after the stop signal, due to mechanical inertia of the moving parts.

Around the packaging machine photoelectric sensors (PD30, PA18 and PH18) are widely used to detect the position of the items to be packed and/or to detect the position of the carton box.

When packaging products into a carton box, the boxes are stacked up unfolded on one side of the machine. Two photoelectric sensors are used: one

to detect that there are enough unfolded carton boxes in the pipeline, the other to detect when an unfolded carton box is ready to be fed into the packaging machine. If this box is not present then the stack of unfolded carton boxes is pushed forward until the sensor detects the first box.



Safety devices and energy efficiency



Safety magnetic switches

**SMS
CLS**

Our safety magnetic sensors (SMS, CLS) are particularly designed for the safety gates that allow entry to machines with dangerous movements. Carlo Gavazzi offers a vast array of products to improve energy efficiency and to ensure the monitoring of entire processes.

3-phase power analysers

WM20

Energy analysers / transducers

**EM210
ET112
ET340**

Energy management components provide vital information for operators to identify consumption trends and take appropriate action. The WM20 power analyser, the EM210 energy analyser or the ET energy transducer can monitor all the main parameters of an electric line or load.

Monitoring relays

**DPD02
DPA01/DPB01
DIA/DIB/DTA**

Switching power supplies

**SPD
SPPC
SPM**

DPA01 monitoring relays monitor phase sequence and phase loss of motors: DPD02 and DPB01 also monitor mains over or under voltages. Overloads can be prevented with the DIA and DIB current monitoring relays whilst the DTA04 relays detect and disable motors in case of overheating. Carlo Gavazzi timers - available in four different housings (standard DIN-rail, Plug-in, 48x48 and MiniD housing) - provide correct and reliable solutions for every application.

The SPUC and the SPUBC modules guarantee power supply and electrical continuity in case of mains failure.

DC UPS

**SPUBC
SPUC**



Packaging Machinery

Our product range

Photoelectric sensors



PA18 / PH18

- Standard M18 cylindrical housing
- Power supply: 10 to 30 VDC
- Separate models available for NPN or PNP outputs
- Range: 1 m (Axial), 0.8 m (Radial)
- Sensitivity adjustment by potentiometer
- Approvals/Marks: CE - cULus - ECOLAB

MAIN FEATURES

- Complying with the requirements of ECOLAB, IP67, IP69K
- Approved according to UL508
- Diagnostic LED indication (green and yellow LED)
- Short circuit, reverse polarity and overload protection

Photoelectric sensors



PD30C

- World standard housing style 10.8 x 30 x 20 mm
- Power supply: 10 to 30 VDC
- NPN or PNP transistor output
- Sensitivity adjustment by Teach-in or by potentiometer
- Approvals/Marks: CE - cULus (UL508, CSA C22.2)

MAIN FEATURES

- Background suppression version, with accurate detection and PointSpot light
- Long detecting distances
- Protection: reverse polarity, short circuit and transients

Photoelectric sensors



PD30ET

- World standard housing style 11 x 31.5 x 21 mm
- Supply voltage: DC 4-wire
- Output: NPN/PNP NO+NC
- Sensor types: D, B, R, P and T
- Connectivity: Cable or M8 connectors
- Approvals/Marks: CE - cULus (UL508, CSA C22.2) - ECOLAB

MAIN FEATURES

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

Photoelectric sensors



PC50

- Dimensions: 17 x 50 x 50 mm
- Sensing distance up to 20 m
- Modulated infrared light
- Make and break switching function selectable
- Cable and plug version
- Approvals/Marks: CE - UL - CSA

MAIN FEATURES

- Adjustable sensitivity
- High EMC immunity
- Protection: reverse polarity, short circuit and transients

Photoelectric sensors



PD112

- Dimensions: 25 x 45 x 112 mm
- Long range background suppression (BGS) sensor
- Power supply receiver: 10 to 30 VDC
- NPN and PNP NO or NC output
- Emitter with Mute Input for testing sensor function
- 2.5 m sensing distance

MAIN FEATURES

- Light beam approved to Safety Category 2
- UL325, UL508, EN12445, EN12453, EN12978
- Long detection range on black objects

Fiber optic amplifiers



FA1

- 2 x 4 digit LED display for signal and threshold level
- Easy setup 3 way adjustment switch
- Selectable response time, timing delay functions
- 100 mA NPN PNP NO NC Switching

MAIN FEATURES

- Varieties of through beam and reflective fiber optic cable
- Ø 0.25, 0.5 or 1.0 mm inner fiber diameter for different applications
- Extra overmoulding on fiber units for better fiber curvature protection

Photoelectric fork sensors



PF80

- Dimensions: 12 x 37.5 x 80 mm. Slot width 3 mm
- Teach-In: push button or by wire
- Rated operational voltage 10-30 VDC
- Aluminium housing
- Approvals/ Marks: CE

MAIN FEATURES

- High speed detection
- Detection of transparent material
- Detection of labels, marks and double sheets

Inductive sensors






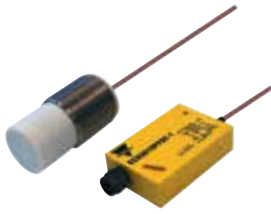




ICB12 / ICB18 / ICB30

- M12, M18 and M30 Nickel-brass housing in short or long barrel lengths
- Standard, double and triple distance sensing ranges
- Output functions: NO and / or NC, NPN or PNP
- Two metre 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

Our product range

Conductive level controllers / probes	Capacitive level sensor	Capacitive sensors	Capacitive sensors
 <p>CLD / CLH</p> <ul style="list-style-type: none"> • 17.5 mm slim housing, 22.5 mm & 35 mm housing available • Multiple filling and emptying functions • 24-240 VAC/DC [CLD2EB1BU24]/ 24 VDC, 115 VAC, 230 VAC • Flexible modular probes up to 5 electrodes [CLH5] • Extendible probes for longer length <p>MAIN FEATURES</p> <ul style="list-style-type: none"> • Wide operational supply voltage range • Slim compact housing • Wide sensitivity adjustment 250 Ω to 500 KΩ • Cascading amplifiers for more levels [CLP2FA] 	 <p>CD34CNF</p> <ul style="list-style-type: none"> • Dimensions 8 x 16 x 34 mm • Power supply: 10-30 DC • Output: NPN / PNP / NO or NC • Power supply from 208 to 480 VAC (+/- 15%) • Connectivity: Cable or M8 4-pin Pig-tail • Approvals/Marks: CE - cULus - ECOLAB <p>MAIN FEATURES</p> <ul style="list-style-type: none"> • Detecting water-based liquids (up to 50 mS) • Automatic adaption to tank wall thickness • Eliminating influence from build-up or foam • IP65, 66, 67, 68, 69K NEMA type 1, 2, 4, 4X, 5, 12 • Protection: reverse polarity, short circuit and transients 	 <p>CA18 / CA30</p> <ul style="list-style-type: none"> • 4th generation Tripleshield™ technology • Dimensions: M18 / M30 • Plastic housing DC versions • Sensing distance up to 30 mm • Approvals/Marks: CE - cULus - ECOLAB <p>MAIN FEATURES</p> <ul style="list-style-type: none"> • Highest EMC immunity • ESD ratings up to 40 KV • Sensing face temperature up to 120°C • Best immunity towards Inverters 	 <p>ECH</p> <ul style="list-style-type: none"> • Sensor diameter: M30, teflon and stainless steel • Adjustable sensing distance: 4 to 15 mm, factory set for 10 mm • Output: transistor NPN or PNP, make & break switching • Power supply: 10 to 40 VDC <p>MAIN FEATURES</p> <ul style="list-style-type: none"> • Provided with a separate teflon sensor head in M30 for temperatures within the range of -196°C to +180°C • Protection: reverse polarity, short circuit, transients
<p>Ultrasonic sensors</p>  <p>UA18 / UA30</p> <ul style="list-style-type: none"> • Dimensions: M18, M30 • Ultrasonic sensors with integrated amplifier providing a digital and/or analog output • Housing material: plastic and stainless steel • Sensing distance up to 6 m • Approvals/Marks: CE - cULus - CSA <p>MAIN FEATURES</p> <ul style="list-style-type: none"> • Excellent EMC performance and precision • Detects clear, transparent and shiny targets, solid objects, liquid or granules. • Protection: short circuit, transient and reverse polarity 	<p>PCB mount solid state relays</p>  <p>RP1</p> <ul style="list-style-type: none"> • Dimensions: 25.4 x 43 x 10.5 mm • Operational voltage range: 24-480 VAC • Rated operational current: 3, 5, 5.5, 10 AAC • Control input ranges: 4-32 VDC, 16-32 VAC • Approvals/Marks: CE - cURus - VDE [RP1...3,5,6] <p>MAIN FEATURES</p> <ul style="list-style-type: none"> • Zero cross or random switching • 4 kV isolation between input & output • Accessories for DIN mount option available 	<p>1-phase solid state relays</p>  <p>RM1.. / RAM1..</p> <ul style="list-style-type: none"> • Dimensions: 58.2 x 44.8 x 28.8 mm, panel mount • Rated operational voltage: up to 660 VAC • Rated operational current: 25, 50, 75, 100, 125 AAC • Control input ranges: 4-32 VDC, 20-280 VAC • Approvals/Marks: CE - EAC - cURus - CSA - CCC - VDE [RAM1] <p>MAIN FEATURES</p> <ul style="list-style-type: none"> • Zero cross or random switching • Low noise emission - EN55011 class B conformance [RM1A..L] • Integrated over-voltage protection [RM1] 	<p>1-phase solid state switches</p>  <p>RGS1A.. / RGC1A..</p> <ul style="list-style-type: none"> • 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 - EAC - VDE - cULus [RGC] - cURus [RGS] - CSA [RGS] - GL (RGC up to 30 AAC) <p>MAIN FEATURES</p> <ul style="list-style-type: none"> • Integrated heatsink [RGC1..], without heatsink [RGS1..] • 100 kA short circuit current rating • Optional overtemperature protection

Packaging Machinery

Our product range

1-ph solid state switches with current monitoring



RGS1S.. / RGC1S..

- Product width: 22.5 mm up to 70 mm, DIN or panel mount
- Ratings: up to 660 VAC, 90 AAC, 18000 A²s
- Integrated output overvoltage protection
- Control input range: 4-32 VDC
- Approvals/Marks: CE - EAC - 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

3-phase solid state contactors



RGC3A.. / RGC2A..

- Product width: up to 70 mm, DIN-rail mounting
- Ratings: up to 660 VAC 75 AAC/pole [RGC2], 65 AAC/pole [RGC3] @ 40°C
- Motor ratings up to 11 kW @ 400 VAC, 25 HP @ 600 VAC
- Control input range: 5-32 VDC, 20-275 VAC (24-190 VDC)
- Approvals/Marks: CE - cULus - EAC - CCC

MAIN FEATURES

- 3-phase; 2-pole [RGC2] or 3-pole [RGC3] switching
- Monitoring for SSR and load circuit malfunction [RGC..M]
- 100 kA short circuit current rating

3-phase general purpose soft starters



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
- Serial communication (Modbus 2-wire) (RSGD 75 mm models)
- Approvals/Marks: cULus - CCC - EAC

MAIN FEATURES

- Easy to use and set-up
- Self-learning algorithm to adapt to different loads
- Auxiliary relays for top of ramp and alarms

Variable frequency drives



RVLF

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

MAIN FEATURES

- Ease of use with minimal settings
- Precision low speed control with SLV algorithms
- Inbuilt filters on most models to reduce harmonics disturbance

Safety magnetic sensors and units



SMS / CLS

- Rectangular or cylindrical housing
- Several output configurations available
- Up to 175 VDC switching voltage
- 350 mA maximum output
- Up to 10 W switching power
- IP67 protection

MAIN FEATURES

- Rugged plastic or stainless steel housing
- Operating temperature: -25°C to 70°C
- Cable output or M12 pigtail connection
- Cylindrical or rectangular safety magnets

CERTUS configurable safety modules



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

MAIN FEATURES

- 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 capable of controlling up to two independent axes

Our product range

Certus multifunction safety module	Certus multifunction safety module	Electromagnetic safety interlocks	Multifunction monitoring relays with NFC
 <p>CM22D0A</p> <ul style="list-style-type: none"> Up to 4 OSSD safety outputs 2 OSSD auxiliary outputs Safety solution for enhanced safety and high protection in inertia machinery Compact dimensions, 1 DIN, W x H x D: 18 x 90 x 63 mm <p>MAIN FEATURES</p> <ul style="list-style-type: none"> Configurable pre-set delayed safety outputs, set via the hex-switch Can be used in applications with: e-stop, e-gate, limit switch, non-contact switch, safety light curtains, safety light beam, safety mat Cat.4 PL e (ISO 13849-1), SIL 3 (IEC 62061), SILca 3 (IEC 61508) Approval by TUV Manual or automatic start selectable 	 <p>CM40D0A / CM30D1A</p> <ul style="list-style-type: none"> 4 OSSD safety outputs [CM40D0A] 3 OSSD safety outputs + 1 auxiliary output [CM30D1A] Safety solution for basic machines, equipment and production lines Compact dimensions, 1 DIN, W x H x D: 18 x 90 x 63 mm <p>MAIN FEATURES</p> <ul style="list-style-type: none"> Can be used in applications with: e-stop, e-gate, limit switch, non-contact switch, safety light curtains, safety light beam, safety mat Cat.4 PL e (ISO 13849-1), SIL 3 (IEC 62061), SILca 3 (IEC 61508) Approval by TUV Manual or automatic start selectable 	 <p>ESI</p> <ul style="list-style-type: none"> Improving safety for applications requiring access to remain closed and locked until potential hazards have stopped or come to a predetermined safe state Standards compliance. SIL 3 in accordance with EN 62061, PL e in accordance with EN ISO 13849-1, interlock type 2 in accordance with EN ISO 14119 Approvals/Marks: CE - cULus - IMQ <p>MAIN FEATURES</p> <ul style="list-style-type: none"> Ensures protection in inertia machinery Protects machines from interruptions Prevents entry into a dangerous area until the unlock signal Manual unlock device for emergency Block controlled by solenoid 	 <p>DPD02</p> <ul style="list-style-type: none"> 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 - CCC <p>MAIN FEATURES</p> <ul style="list-style-type: none"> NFC programming Up to 10 configurable setpoints Apps for Android and Windows PC programming
<p>3-phase monitoring relays</p>	<p>Motor thermistor relays</p>	<p>Current monitoring relays</p>	<p>Current monitoring relays and Current transformers</p>



- DPA01 / DPB01**
- Dimensions: 81 x 22.5 x 99.5 mm DIN-rail housing
 - 3-phase monitoring relay for phase sequence and phase loss [DPA01]
 - TRMS 3-phase over and under voltage, phase sequence and phase loss monitoring relays [DPB01]
 - Approvals/Marks: CE - UL - CSA

- MAIN FEATURES**
- Selection of measuring range by DIP-switches [DPB01]
 - Detects when all phases are present and have the correct sequenc [DPA01]
 - LED indication for relay, alarm and power supply ON



- DTA04**
- Dimensions: 22.5 DIN Housing
 - Motor thermistor relay
 - PTC Open and PTC Short detection
 - Universal power supply from 24 V to 240 VAC/DC
 - Approvals/Marks: UL and CE approved

- MAIN FEATURES**
- Multicolour LED with alarm discrimination
 - Auto or manual, local or remote reset, test function
 - Ready for reset function



- DIA53**
- 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



- DIB01 / A82**
- Dimensions: 81 x 22.5 x 99.5 mm DIN-rail housing
 - TRMS AC/DC over or under current monitoring relay
 - Direct measuring or through current transformer [A82]
 - A82: true RMS AC current metering transformer for 25, 50, 100, 250 or 500 AAC
 - Approvals/Marks: UL - CSA

- MAIN FEATURES**
- Programmable latching or inhibiting at set level
 - LED indication for relay, alarm and power supply ON
 - A82: easy interface to PLC or setpoint relays

Packaging Machinery

Our product range

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
- Approvals/Marks: cULus

MAIN FEATURES

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

Energy analysers



EM210

- 3-phase energy meters with CT connection
- Solid or split-core 5 A CT
- Dimensions: 4 DIN modules or 72 x 72 mm 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
- Approvals/Marks: CE - cULus

1 and 3-phase energy transducers



ET112 / ET340

- 2 DIN size; DIN-rail mounting [ET112]
- 3 DIN size; DIN-rail mounting [ET340]
- Measurement of voltage, current, power, power factor and frequency
- Bi-directional energy metering, 2 tariffs, cl. 1 (EN62053-1)
- Measuring inputs: 115/230 VAC, 100 A [ET112], single phase
- Measuring inputs: 208 to 400 V_{LL} VAC, 65 A [ET340], 3-phase

MAIN FEATURES

- Self-powered
- RS485 Modbus port (screw, 2x RJ45)
- Optical port
- Sealable terminal covers
- CE

Timers



DAA51 / DMB51

- 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

MAIN FEATURES

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

DIN-rail switch mode power supplies



SPD

- DIN-rail mounting
- 1-phase (5-480 W), 2-phase (100 W), 3-phase (120-960 W)
- Rated input voltage: 85-264 VAC (1-phase), 380-575 VAC (2-phase), 340-575 VAC / 480-820 VDC (3-phase)
- Approvals/Marks: CE - TÜV - cULus - UL1310 Class 2 (<92W), ISA12.12.1 Class 1, Div 2

MAIN FEATURES

- Power Factor Correction (PFC)
- Parallel connection
- DC OK output

Low profile power supplies



SPM

- Compact DIN-rail housing - 1/3/4/5 Din width
- Universal input from 90-264 VAC
- Integrated short circuit and overload protection with built-in input filters
- High efficiency of up to 89%
- Approvals/Marks: CE - cULus - TÜV

MAIN FEATURES

- Compact design for installation within distribution box with ratings up to 100 W
- Intuitive visual and electrical indications
- Selected models comes with UL 1310 Class 2 classification

Metal enclosed power supplies



SPPC

- Output power from 25 W to 800 W
- Input 110/240 VAC single phase
- Short circuit, overload and overvoltage protection
- PFC function available >75 W
- Approvals/Marks: CE - UL

MAIN FEATURES

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

DC UPS



SPUC / SPUBC

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

MAIN FEATURES

- Power supply independent from charger [SPUBC], to be used in addition to 12 or 24 V power supply [SPUC]
- Remote indication for battery operation and battery low
- "Start from battery" and "Empty battery charging" features [SPUBC]

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