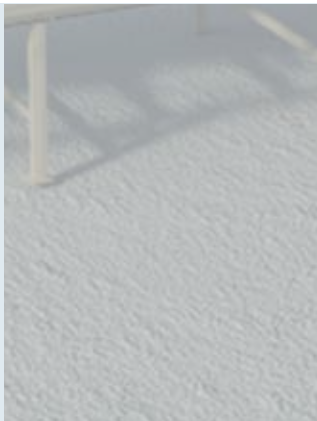


Solutions

Mining Machinery

Mining machinery

Solutions for



Long conveyors in mining, tunneling and cement factories

Motor control and monitoring of energy consumption

Pumping systems and services

Crushing equipment

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.

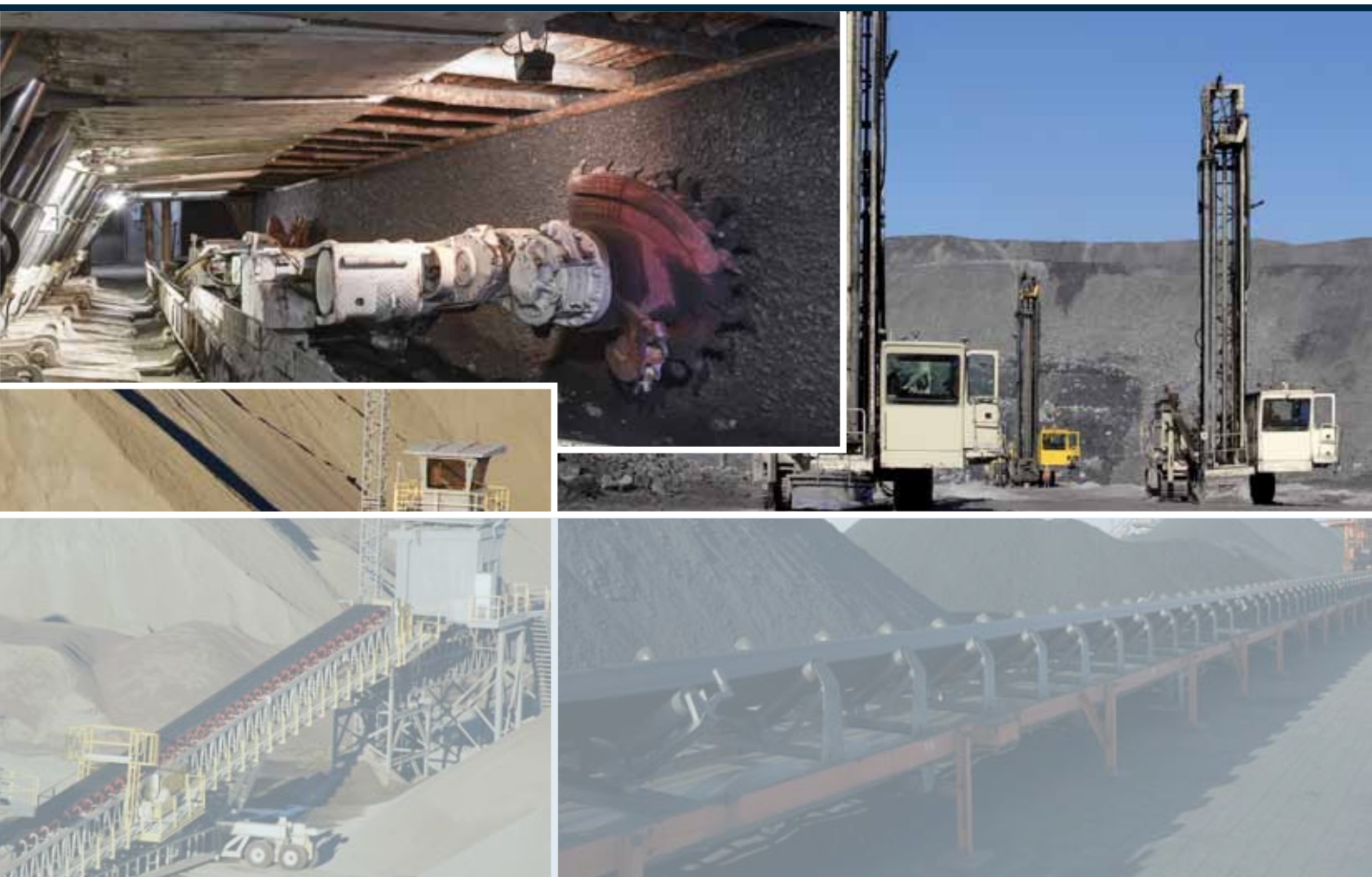
We operate worldwide through 22 of our own sales companies and also selected representatives in more than 65 countries, from the United States in the West to the Pacific Rim in the East.

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 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 global mining equipment market is primarily driven by factors such as increasing mining activities in developing countries and the rising demand for technically advanced solutions across the globe.

Several large projects planned in Brazil, Russia, Australia, Africa and other regions are expected to drive the mining equipment industry in the coming years.

Coal mining and other underground mining activities taking place in the emerging markets, especially in the Americas and Asia Pacific, are leading to huge demand for mining equipment in these regions.

Carlo Gavazzi offers its DuplineSafe system to monitor long conveyors in order to control the operation and check the safety status.

DuplineSafe is based on the Dupline® fieldbus, a system that has been used in more than 120,000 installations worldwide in the harshest industrial environments. The Dupline® is especially in demand due to its reliability, simplicity and ability to transmit signals over long distances - no need for special network modules or special handling. This is one of the main reasons why DuplineSafe is the leading safety bus system worldwide for long conveyors in mines, tunnels, cement factories, stone mills etc.

In some critical applications, it is recommended that the motor is protected against malfunctions which

could cause expensive downtime. The DMPU motor protection device provides constant monitoring of the motor, reducing costs and planning maintenance operations.

Thanks to its high level of flexibility and versatility, the DMPU basic module can be supplied with additional optional modules offering high protection, data logging and full variable energy measurement functions.

In addition, Carlo Gavazzi offers a wide range of soft starters and variable frequency drives to control starting/stopping, torque, ramp-up and ramp down of pumps in de-watering plant, as well as, the soft start and stop of the motors in crushers, conveyors and other equipment used in mining production sites.

Mining Machinery

Long conveyors in mining, tunneling and cement factories



**Safety relay
output module**

GS3830

**Profibus
DP gateway**

GS3891

**Graphical
displays**

**BTM-T4
BTM-T7**

**Input
modules**

GS7510

Along bulk material conveyors in mines, tunnels, cement factories etc. there are several emergency stop switches connected to a pull-wire, enabling the workers to stop the belt at any point in case of an emergency situation or a fault on the belt.

In order to reduce costly downtime of

the belt, it is important that the location and nature of the problem is identified as quickly as possible.

The traditional wiring solution does not provide the diagnostics, it merely stops the belt. Parallel wiring is a high-cost solution, since long conveyors may have more than 50 switches installed.

DuplineSafe represents a simple, flexible and cost-effective solution. A single two-wire bus cable is pulled along the conveyor. At each pull-wire safety switch, a small DuplineSafe input module is connected to the two bus wires and to the normally closed contact set of the safety switch. The input module continuously transmits the status of the safety switch in a dynamic way using the DuplineSafe address assigned to the module. The power supply for the input module is derived from the two-wire bus, hence no local power supply is required. In the machine room, a DuplineSafe relay output module is continuously monitoring the bus and the status of all the safety switches. If one of the safety





**Handheld
programming and test tool**

GS7380

**Optical
converters**

**GS3492
GS3493**

**Modbus
RS485 gateway**

GSTI50

**Certus configurable
safety modules**

CERTUS

switches is activated, or if a bus fault is detected, the output module will deactivate its safety relay and thereby stop the belt. The status of the safety switches can be monitored from an HMI or LED mimic panel, providing fast and precise diagnostics. The signals can also be monitored from a PLC or PC, for example by using the DuplineSafe Profibus-DP Gateway. In addition, conveyor performance can be continuously monitored by Certus configurable safety modules. The Certus provides up to 128 inputs and 16 pairs of programmable solid state outputs and is able to be connected to the Fieldbus system for diagnostic and data communication.

DuplineSafe keeps up production and makes your plant safer

- Immediate and precise diagnostics
- Up to 5 km (3.1 miles) transmission distance without repeater
- Bus-powered input modules
- Easy to design, install and expand
- Multiple safety relays can read the same inputs
- TÜV-approved



Mining Machinery

Motor control and monitoring of energy consumption



Main modules

Measurement modules

Input/Output module

Operator panel

Earth leakage

**DMPUC-MBT
DMPUC-PRB**

**DMPUC-05
DMPUC-65**

DMPUC-R2

DMPUC-HMI

DMPUC-EL

We know how crucial the control of conveyor belts is for material handling of ore and mining productivity. In a coal mine the ore is transported via a series of conveyors for thousands of metres (yards) from trains to stockpile

areas. If a conveyor motor fails, there is loss of production. The DMPU motor protection unit, developed by Carlo Gavazzi, is a modular electronic relay to control,

monitor and display the performances of 3-phase, constant or dual speed, AC induction motors.

The DMPU, starting with current and voltage measurement, protects the motor against damage due to thermal effects which take place in overload conditions.

The DMPU also monitors the number of starts during the most recent set time period in order to limit any overheating caused by frequent restarts, which results in the motor stopping.

The DMPU can be configured to notify the operator when maintenance is required: this happens when the operating conditions of the motor reach a specific and predetermined value.





Core balance transformers

CTG

Graphical displays

**BTM-T4
BTM-T7**

Motor controllers

RVLF

Inductive sensors

**ICS12
ICS18
ICS30**

In mining applications there is often a lot of moisture in the environment and this makes it very important to monitor earth leakage current.

The DMPUC-EL is a plug-in module for the DMPU and provides earth leakage protection according to EN60947-2.

The measured earth leakage current can be shown on the operator interface or sent to the supervision system, as any other variable.

Pre-alarms can be programmed to warn the user before the protection function trips.

Conveyors are typical applications where variable frequency drives offer a number of advantages.

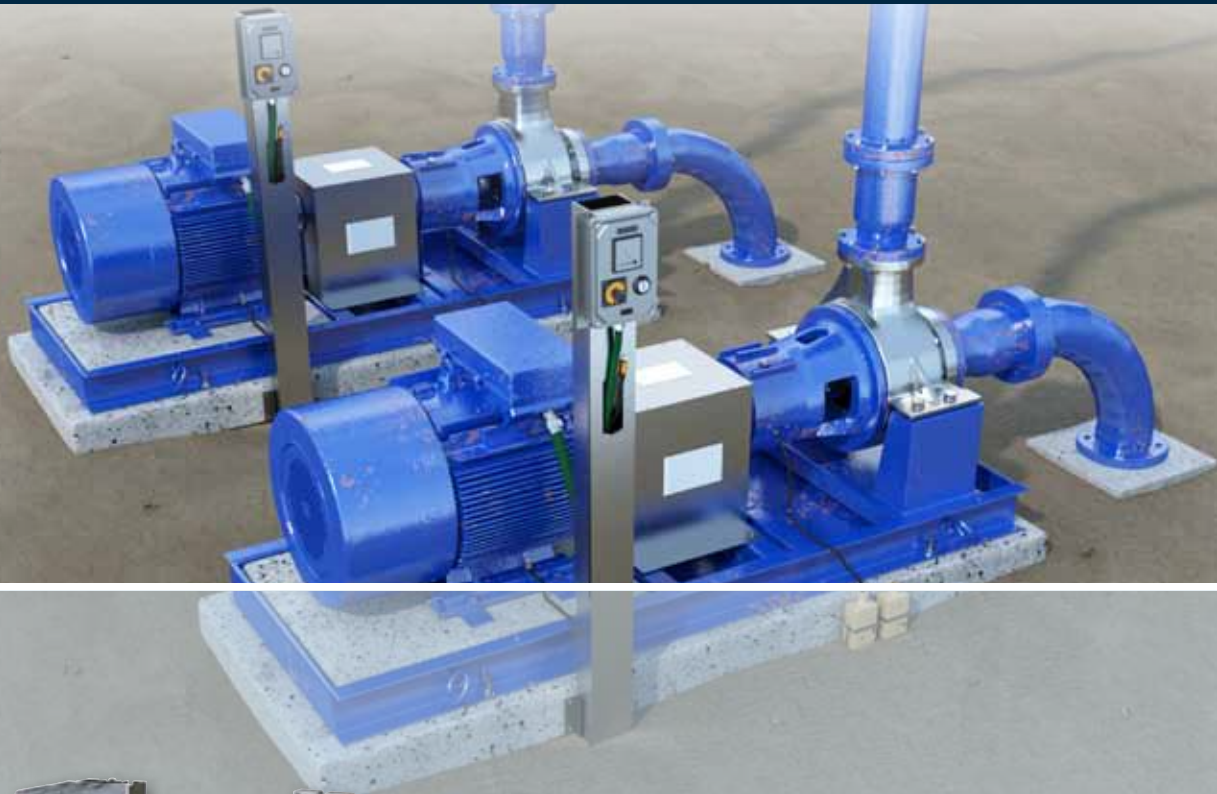
The Carlo Gavazzi RVLF variable frequency drives are used for speed control of conveyors for optimal process control, as well as high starting torque whilst reducing stresses on the belts and shafts.

They conform to EMI radio standard and EMC immunity standard EN 61800-3 for the second environment (Industrial sites).



Mining Machinery

Pumping systems and services



Soft starters

Soft starters

Motor controllers

Monitoring relays

Monitoring relays

Energy analysers

RSWT

RSGD

RVLF

**DLA71/73
DPC**

EM24

EM24

The reliability of pumping equipment is crucial for removing water in an effective mining operation.

The RSWT soft starters are designed with a dedicated and self-learning algorithm to ensure that the pump starts and stops smoothly.

The algorithm is self-learning, so as to remove as many settings as possible. In fact, we are the first to come up with a soft-starter which requires just a 1-knob setting for complete soft-starting and soft-stopping.

The Carlo Gavazzi product range to ensure the reliable operation of pumping systems includes the RSGD series soft starters and the RVLF variable frequency drives.

The DLA71/73 monitoring relays are specifically made for pumping systems where two or three pumps have to work in parallel: they manage the signals from the inputs, sequentially activating

the working cycle of the pumps.

In addition, Carlo Gavazzi products are used for the control of ventilation plants, as well as for the monitoring of energy parameters and consumption.



Crushing equipment



Motor controllers

Monitoring relays load guard

Inductive sensors

Photoelectric sensors

Certus configurable safety modules

RVLF

DWB

**ICB12
ICB18
ICB30**

**MOF
S142**

CERTUS

Mining crusher machines are extremely important to the mining process, in order to reduce the material to a fine consistency for the processing and using of precious excavated resources.

Jaw crushers are very robust and they have sufficient torque to break the stone. They use over dimensioned electric motors and large flywheels to accumulate kinetic energy.

The load characteristics in the case of jaw crushers continuously vary, due to the various sizes of the rock entering the feed. The motor goes to overload peaks and comes down.

Starting needs to be smooth to minimize mechanical stresses and

eliminate high starting currents. The RVLF variable frequency drives provide an effective way to meet the smooth starting requirements and motor speed variations, by automatically adjusting the torque. Inductive sensors ICB series, certified Class 1, Division 2 for hazardous environment, are also used in these plants.

As well as, the photoelectric sensors MOF with amplifier S142 can be used to detect stones on conveyor belts.

Worker safety is a mandatory along crushing equipment.

The Carlo Gavazzi Certus is a flexible modular system able to

manage and monitor several sensors and commands at the same time in order to guarantee the safety of the operators engaged in the work.



Mining machinery

Our product range

Safety relay output module



GS3830

- Dimensions: 144 x 77 x 70 mm
- Monitors up to 63 safety input modules
- For mounting on DIN-rail (EN50022)
- 230 VAC power supply
- Approvals/Marks: cULus approved
- Approved by TÜV Rheinland Group according to IEC/EN 61508-SIL3, IEC/EN 62061-SIL3 and ISO/EN 13849-1 PL e

MAIN FEATURES

- Automatic or manual restart
- Status output for external equipment
- Easy configuration and testing with handheld programming tool

Profibus DP gateway



GS3891

- Dimensions: 144 x 77 x 70 mm
- Profibus-DP slave according to EN50170
- For mounting on DIN-rail (EN50022)
- 230 VAC power supply
- Approvals/Marks: cULus approved

MAIN FEATURES

- Makes DuplineSafe diagnostics available on Profibus-DP
- Several gateways can be connected to the same bus
- Useful for interfacing to PLCs and PCs

Input modules



GS7510

- Dimensions: 57.5 x 36 x 16.4 mm
- Powered by the bus
- IP67 rating
- Approvals/Marks: cULus approved
- Approved by TÜV Rheinland Group according to EC/EN 61508-SIL3, IEC/EN 62061-SIL3 and ISO/EN 13849-1 PL e

MAIN FEATURES

- Easy coding and testing with handheld programming tool
- Small dimensions (57.5 x 36.0 x 16.4 mm) for decentralized installation at the actual location of the safety switch

Handheld programming and test tool



GS7380

- Dimensions: 28 x 90 x 145 mm
- Used for address coding of GS75102101 and configuration of GS38300143230
- Battery-powered

MAIN FEATURES

- Can be connected at any point on the bus to read out status of all safety signals
- Easy-to-use

Optical converters



GS3492 / GS3493

- Dimensions: 77 x 72 x 70 mm
- Runs on optical multimode fibre pairs (50/125, 62.5/125)
- ST type connector
- For mounting on DIN-rail (EN50022)
- AC power supply

MAIN FEATURES

- Up to 5 km optical transmission distance with 62.5/125 fibre
- Converts DuplineSafe for transmission on optical fibre

Modbus RS485 gateway



GST150

- Dimensions: 55 x 70 x 15 mm
- Enables monitoring of safety signals from text displays, touchscreens, PLCs and PCs
- Power supply from bus and text display
- Approvals/Marks: cULus approved

MAIN FEATURES

- Small dimension housing for mounting directly at text display
- Several GST150s can be connected to the same bus

3-phase centrifugal pump soft starters



RSWT

- Motor rating: up to 45 kW (90 A)
- 3-phase controlled & internally bypassed
- Ramp-up/Ramp-down time: up to 20 sec
- Operational voltage: RSWT40: 220 - 400 VAC, RSWT60: 220 - 600 VAC
- PTC input, Alarm - Top of ramp - Run relay indication

MAIN FEATURES

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

3-phase general purpose soft starters



RSGD

- Motor Rating: up to 22 kW in 45 mm
- Ramp up time: 1 - 20 sec
- Internally bypassed
- Multi voltage operation: RSGD40: 220 - 400 VAC, RSGD60: 220 - 600 VAC
- Wide control voltage range: option E: 110 - 400 VAC option F: 24 VAC/DC

MAIN FEATURES

- Easy to use and setup
- Current balancing algorithm
- Auxiliary relays for top of ramp and alarms

Our product range

Main modules	Measurement modules	Input / output module	Operator panel
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DMPUC-MBT/DMPUC-PRB

- Dimensions: 35.5 x 90 x 63.2 mm
- Communication port for: Profibus (DMPUC-PRB) or Modbus TCP/IP (DMPUC-MBT)
- RS485 port (Modbus) to connect the operator interface or the PC when programming the unit
- 3 PTC or PT100 or digital Inputs
- 24 VDC power supply voltage
- Approvals/Marks: CE - cULus listed - C-tick

MAIN FEATURES

- Data logging and event data stamping functions
- Internal bus connecting additional modules



DMPUC-05/DMPUC-65

- Dimensions: 53.5 x 90 x 63.2 (or 92) mm
- Measures 3-phase currents and voltages
- 5 A and 65 A module versions
- Split-core current measurement up to 5 A (then external CT's)
- 2 relay outputs
- Approvals/Marks: CE - cULus listed - C-tick

MAIN FEATURES

- Connected to the main module via cable to allow free location into the drawer
- Power supply from the main module (no need of further connections)



DMPUC-R2

- Dimensions: 17.5 x 90 x 63.2 mm
- 2 PTC or PT100 or digital Inputs
- 2 relay outputs
- 24 VDC \pm 20 % power supply input via internal bus
- Approvals/Marks: CE - cULus listed - C-tick

MAIN FEATURES

- Internal bus connecting main and additional modules
- Plugged to the main module and supplied through it



DMPUC-HMI

- Dimensions: 96 x 48 x 88.5 mm
- 2 x 8 characters display
- Text, alarms and values display
- Motor start/stop
- 24 VDC power supply voltage
- Communication to base module via Modbus RTU port
- Displays the instantaneous variables.
- LED and display alarm warning
- Approvals/Marks: cULus listed

MAIN FEATURES

- Can display data from more units
- Four programmable keys
- Freely configurable pages.

Earth leakage	Core balance transformers	Graphical displays	Motor controllers
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DMPUC-EL

- Dimensions: 17.5 x 90 x 63.2 mm
- Core balance transformer input 1/250 to 1/1000 ratio
- Measures earth residual current through an external toroid
- Independent local SPST relay
- 3 digital inputs - 0.03 A to 30 A set-point
- Approvals/Marks: CE - cULus listed - C-tick

MAIN FEATURES

- 1 relay output dedicated to earth leakage alarm
- Power supply from main module



CTG

- Hole \varnothing 35, 70, 120 or 210 mm
- Core balance transformers for DMPUC-EL
- Current transformer ratio 1000/1
- Earth leakage current alarm from 0.03 A to 30 A
- Approvals/Marks: CE - cULus listed - C-tick (with DMPUC-EL)

MAIN FEATURES

- Available with various internal diameters to satisfy the needs of several 3-phase cables diameters



BTM-T4 / BTM-T7

- 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

MAIN FEATURES

- Ethernet connection
- BACnet protocol available
- USB port, SD memory, Modbus RTU serial port
- KNX compatibility plug-in



RVLF

- Compact dimensions: 2 physical frame sizes
- VF control and auto-torque compensation
- Drive voltage rating: 200-240VAC or 380-480VAC
- Drive KW rating: 0.2 KW - 2.2 KW, (0.25 HP - 3.0 HP)
- Approvals/Marks: IEC. UL. ROHS

MAIN FEATURES

- Ease of use, minimal settings
- PID control & torque boost capability
- Less disturbance with built-in EMI filter

Mining machinery

Our product range

Inductive sensors



ICB12 / ICB18 / ICB30

- M12, M18 and M30 NPB housing in short or long barrel lengths
- Sensing distance from 2 mm up to 40 mm
- Output functions: NO or NC, NPN or PNP
- Two metre oil resistant PVC cable or M12 plug version
- Approvals/Marks: CE - cULus - cCSAus

MAIN FEATURES

- CSA certified for hazardous location - Class 1 Division 2
- High precision and reliability thanks to microprocessor technology
- Eco-friendly potting material made from recycled corn by-product (ICB12 and ICB18)

Inductive sensors



ICS12 / ICS18 / ICS30

- M12, M18 and M30 stainless steel housing
- Sensing distance from 2 mm up to 22 mm
- Degree of protection: IP67, IP68 and IP69K
- Approvals/Marks: CE - cULus - cCSAus ECOLAB

MAIN FEATURES

- CSA certified for hazardous location - Class 1 Division 2
- Short-circuit and overload LED indication
- Extended temperature range: -40°C to +80°C (-40°C to +85°C for ICS30)

Photoelectric sensors



MOFT / MOFR

- Ø 10 mm polycarbonate housing or M12 or M14 stainless steel
- Range: 20 m or 50 m
- For amplifier series S142. and S143.
- Modulated infrared light
- Degree of protection IP 66/IP 67
- Approvals/Marks: CE - Atex

MAIN FEATURES

- Water proof, for dirty environment, i.e. water, dust, steam
- High immunity to ambient light

Photoelectric amplifiers



S142

- μ -Processor controlled, amplifier relay for photoelectric switch
- Rated operational voltage: 24 VAC/DC, 24 VAC, 115 VAC or 230 VAC
- Self diagnostic functions
- Approvals/Marks: CE - UL - CSA

MAIN FEATURES

- Automatic or manual emitter power regulation
- Self-diagnostic function

Magnetic sensors



FSQ / MQ

- Cylindrical & Mechanical housings
- Output functions: NO, NC, CO
- Housing material: stainless steel (FSQ) and auto extinguishing polypropylene

MAIN FEATURES

- Atex approved
- Operating temperature: -20° to +60°C
- Protection degree: IP67

3-phase load guard monitoring relays



DWB01

- Dimensions: 80 x 45 x 99.5 mm
- TRMS load guard relays for three phase balanced applications
- Measuring if the power factor is within set limits
- LED indication for relay, alarm and power supply ON

MAIN FEATURES

- Automatic and manual start and stop of the system
- Separately adjustable upper/lower level on absolute scale
- Programmable latching or inhibit at set level

3-phase multifunction monitoring relays



DPC02

- Dimensions: 80 x 45 x 99.5 mm
- TRMS 3-phase over and under voltage, over and under frequency, phase sequence and phase loss monitoring relay
- 208 to 690 VAC, 50 Hz or 60 Hz mains monitoring
- Output: 2 x 8 A relay SPDT
- Approvals/Marks: CE - UL

MAIN FEATURES

- Supply ranges from 208 to 690 VAC covered by four multi voltage relays.
- The main application is for generator sets
- Separately adjustable set points

Pump alternating monitoring relays



DLA71

- Dimensions: 81 x 35.5 x 67.2 mm
- Pump alternating relay for 2 or 3 pumps
- Galvanically separated power supply, 24/48 or 115/230 VAC
- 2x or 3x 5 A SPST relay output
- Approvals/Marks: UL - CSA

MAIN FEATURES

- Built-in function for automatic rotation of the pumps
- Built-in delay for the second or third pump in case simultaneous activation is required
- Plug and play: no settings needed

Our product range

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
- CMC config memory card slot
- LOG file with 5 configuration modifications
- 24 connectors in 22.5 mm
- 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+, 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 data and diagn. modules + bus transfer



DDC + CBT

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

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

CERTUS Speed monitoring modules



CES

- Expansion 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

Safety modules



NES02D / NES13D / NLG

- Safety modules for gate and emergency stop (NE) and light curtain (NL)
- 2 NO / 3 NO safety Outputs
- IP40 protection for housing and IP20 protection for terminals
- Approvals/Marks: CE - cULus

MAIN FEATURES

- Safety category 4
- < 30 ms response time
- Performance Level PL: e in according with ISO 13849-1
- Safety Integrity Level SILcl:3
- in according with IEC 62061

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 hinges



PS38H

- Dimensions 110 x 30 x 15 mm
- Integrated safety circuit
- Conforms to IEC / EN Standards, ISO 13849-1 (SIL3, PL_e)
- Stainless steel components
- Contact configurations: 2NO + 2NC / 1NO + 3NC

MAIN FEATURES

- Five different configurations for connection
- Minimum installation width: 30 mm

Web server and data logger



VMUC-EM

- Dimensions: 83.5 x 45 x 98.5 mm
- Micro PC with Web-server and Web service capability
- Internal 4GB memory and 16GB SDHC card back-up memory
- Management up to 32 energy meters and 11 remote I/O module groups
- Approvals/Marks: CE - cULus

MAIN FEATURES

- Energy analysis of each single load
- Energy bill evaluation
- Alarms control with automatic e-mailing and SMS management

Mining machinery

Our product range

Modular power analysers



WM30 / WM40

- Dimensions: 96 x 96 mm
- Panel mounting housing.
- Accuracy 0.2 % (voltage, current)
- Universal power supply
- Front protection degree IP65, NEMA4X, NEMA12
- Approvals/Marks: CE - CULus

MAIN FEATURES

- Modular housing to build the instrument according to the real application needs
- Modbus (RTU and TCP/IP, BACnet (MS/TP and IP) and Ethernet/IP and ProfiBus DP V0 communication ports available

3-phase energy meters / analysers



EM23/EM24

- Dimensions: 90 x 72 x 67 mm
- Single-phase and 3-phase energy meters with direct connection
- Current rates up to 65 A
- Class 1 (kWh) acc. to EN62053-1
- Pulse open collector output or Modbus port
- Modbus connection port (EM24)

MAIN FEATURES

- Direct measurement in a very compact housing to save space
- Enables and simplifies energy cost allocation
- MID Annex D certification available (retransmission optional)

3-phase power transducers



CPT DIN

- 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
- Approvals/Marks: CE - cURus - CSA

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

Power supplies



SPD

- DIN-rail housing
- Short circuit protection
- 1-phase, (5 - 480 W), 2-phase (100 W), 3-phase (120 - 960 W)
- Rated input voltage: 115/230 VAC selectable 100/240 VAC
- Approvals/Marks: UL - cUL listed and TÜV/CE, Class 1, Division 2

MAIN FEATURES

- Overload protection
- Parallel versions available
- High efficiency

Low profile DIN-rail power supplies



SPM

- Output power from 7.5 W to 100 W
- Input 110 / 240 V single phase and DC 120 to 370 V
- 1-phase, (10 - 100 W), battery charger version available
- Short circuit, overload protection
- From -25°C to +60°C operation w/ out derating
- Approvals/Marks: UL - cUL listed and TÜV/CE, Class 1, Division 2

MAIN FEATURES

- UL 1310 Class 2 output < 91 W
- Adjustable output $\pm 10\%$
- Low voltage LED indication

DIN rail power supplies



SPDM

- 120W output power
- 45mm 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

DIN rail power supplies



SPDC 120W

- 12 or 24VDC, 120W output
- 32mm 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

DIN rail power supplies



SPDC 240W

- 24VDC, 240W output
- 45mm 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

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