ags

Al Sakr General Supplies
الصقر للتوريدات العمومية

SIEMENS Automation Solution

SICK Sensor Intelligence. Germany

ABB VALUE PROVIDER

Vision

ALSAKR GENERAL SUPPLIES aims to be a market leader in the Egyptian market providing automation solutions that are reliable, innovative and eco-friendly.

Mission statement

Establishing long-term partnerships with both customers and suppliers enables us to offer best solutions with high-quality standards. We work closely with our clients from consulting to turnkey projects.

We believe that business will grow with efficient management and organization, hence we're continuously developing our organization and staff.

About AGS

ALSAKR GENERAL SUPPLIES, formerly known as **TOP GROUP**, was founded in 1995.

AGS is an industrial automation specialist with more than 20-years experience in the Egyptian market. **AGS** is continuously working on supporting the industries with reliable, innovative solutions through its highly skilled employees and its diverse range of high quality products such as SICK AG, ABB, TOHO, SIEMENS, Schneider Electric.

AGS believes in supporting its customers, thus providing consistent technical support and services through its technically competent staff.

By building long-term partnerships, **AGS** continues to impress new customers whilst maintaining a large existing customer base.

OUR PARTNERS

FOOD & BEVERAGE INDUSTRIES

PHARMACEUTICALS INDUSTRIES

COSMETICS INDUSTRIES

Unilever • P&G Procter & Gamble • L'ORÉAL PROFESSIONNEL • ROYAL Cosmetics • Dabur Celebrate Life! • EVA COSMETICS

PAPER INDUSTRIES

FINE By Your Side • Flora • Carmen Tissues S.A.E كارمن للمنتجات الورقية ش.م.م • IPI INTERSTATE PAPER INDUSTRIES A member of INDEVCO group • Zeina Tissue Products • هاندي

ENGINEERING INDUSTRIES

ABB • ELSEWEDY ELECTRIC • العربى صُنّاع الثِّقة • Ideal STANDARD • EGYPTIAN STEEL • GROUPE ATLANTIC • ASFOUR CRYSTAL • شركة السويس للصلب SUEZ STEEL CO. • BS BESHAY STEEL • ezzsteel حديد عز • Fricool • Electrostar الكتروستار • universal • FRESH

CHEMICAL INDUSTRIES

GLC paints • SIPES • KAPCI COATINGS

CERAMIC INDUSTRIES

CERAMICA CLEOPATRA GROUP • Art ceramic • ROYAL CERAMICA • OMEGA ceramic سيراميك اوميجا • VENUS CERAMICA • VERDI • CERAMICA PRIMA Exclusively Selected • porcelain & Ceramic AL AMIR • ALFA CERAMIC Alfa Ceramic...For your Life • Pyramids CERAMICA • سيراميك الفراعنة • Ceramica La Beauté • ceramica Granito • الجوهرة

PLASTIC INDUSTRIES

مجموعة مصر الحجاز Misr Elhegaz Group • العلا والنجمة الذهبية • مجمع النور MISR EL NOUR • اشتين

TEXTILE INDUSTRIES

النساجون الشرقيون Oriental Weavers • مالك mac • HESNI • EFCO

* **Industrial Sensors:**

* Inductive proximity sensors:

Product description:
- Cylindrical, sleeve & rectangular design in different sizes.
- From 3 to 34 mm.
- Switching distances up to 60 mm.
- AC/DC & Namur.
- Metallic & plastic housing.
- Current or Voltage analogue output available.

Area of use:
- Automotive industry.   - Metal & Steel processing.
- Electronic industry.   - Mechanical engineering in general.

Anti-dust, Anti-shock and waterproof

* Capacitive proximity sensors:

Product description:
- Sensors for monitoring filling levels of closed containers, checking presence & checking levels of bulk materials, final inspection of packaging processes.
- Rectangular & Cylindrical housing with thread sizes 12,18 and 30mm,Switching distances from 8 to 25 mm.

At a glance
- Cylindrical housing/Rectangular housing
- Detects powders, granulates, liquids and solids
- Extremely high electromagnetic compatibility
- Electric version: DC 2 and 4-wire
- Supply voltage: 10 V ... 36 V DC
- Enclosure rating: IP 65, IP 68, IP 69K

Area of use:
- Food industry.   - Pharmaceutical industry.   - Agriculture.   - Packaging.
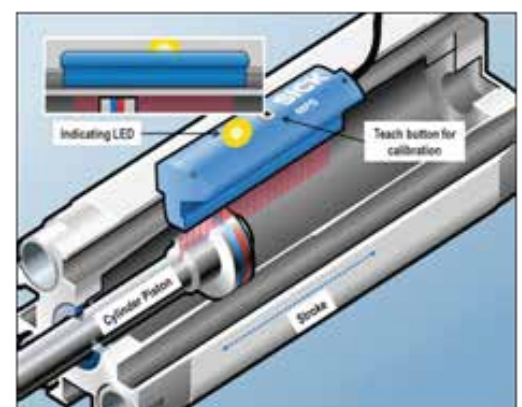
Level Detection Applications

* Magnetic cylinder sensors:

Sensors for C or T-slot cylinders:
- Sensor variants with measuring ranges of 25 mm to 256 mm
- Analog outputs (for current or voltage), switching output, and IO-Link
- Mounting on other cylinder types " round body cylinders" is possible with adapters
- Can be used in all standard cylinders, linear slides, and grippers using the C/T-slot and – with the help of adapters – in round rod, tie-rod, and profile-cylinders, and cylinders with a dovetail groove
- Combined fixing screw (hexagon socket screw and slotted screw)
- LED for indicating the output state (depending on type)

Area of use:
- Packaging machines.
- Handling and assembly technology
- Woodworking machines
- Electronics production
- Textile machinery
- Special machine construction

Internal Section

Internal Section

SICK
Sensor Intelligence.
Germany

* Photoelectric sensors:

Product description:
- Miniature, small & compact photoelectric switches.
- Rectangular & cylindrical shapes.
- Complete family of sensors consists of proximity, through beam and reflex
- Photoelectric switches used in aggressive environmental conditions.
- Laser variants also available.
- Photoelectric switches for glass detection.
- Highly immune to dazzling, referctive and glossy surfaces.
- Detection of the smallest objects by fiber-optic cables.
- Available in explosive areas.

Area of use:

- Pharmaceutical industry.   - Robotics & handling.
- Packaging industry.   - Container logistics.
- Automotive industry.   - Chemical industry.
- Food & Beverages.   - Conveyor systems.

Counting & Detecting Applications

* Fiber-optic sensors:

- Selectable response time up to 16 µs
- Sensing range up to 20 m (through-beam system), up to 1,400 mm (proximity system)
- Bus-compatible with anti-interference   - Adjustable hysteresis
- Rotatable display screen   - Programmable time delays
- Rapid response time of 50 µs
- Switching threshold adjustment via potentiometer, or teach-in via pushbutton or cable
- IP 66 enclosure rating for high degree of ruggedness
- PNP/NPN switchover (teach-in variant)

Fields of applications

- Diverse applications in challenging ambient conditions which require an economical fiber optic sensor
- Environments with limited space   - Environments with high temperatures
- Handling and assembly technology   - Electronics and solar industry
- Packaging and logistics

Detecting Applications
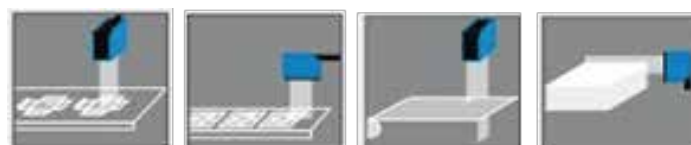
Array sensors

NEW

Array sensors

At a glance
- array sensors for edge and diameter detection solutions
- Proximity contrast line sensor in a compact housing
- Application-specific sensor functions
- Detect position of edge of material
- Diameter, width and gap detection of different objects
- Very high reproducibility of 0.03 mm
- Large measurement range: 30 mm
- Visible white LED light spot to enable accurate alignment
- Simple setup, no teach-in necessary

Area of Use
- Stack height monitoring   - Web edge detection   - Object positioning
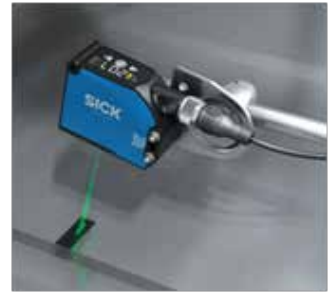
PinPoint by SICK
IO-Link

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✳ Registration sensors:

✳ Contrast sensors:

KTM / KTS

- White LED or RGB LED
- Small housing allows installation even where space is limited
- High gray line resolution
- 10 - 50 kHz switching frequency
- Display for easy sensor adjustment
- IO-Link and automation functions
- 2-points and dynamic teach-in
- Manual switching threshold adjustment
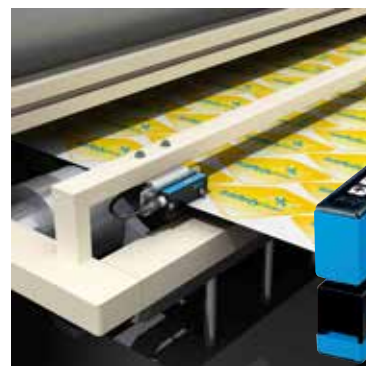- Large dynamic range means reliable detection of contrasts on glossy materials
- Light/dark switching

✳ Fork sensors:

Product description:

- Transmitter and receiver in fork housing.
- Wide variety of fork widths and depths.
- Precisely adjustable on object.
- Detection of the smallest of light attenuation differences.
- Teach-in function at the press of a button.

Area of use:

- Label detection.
- Double-sheet detection.
- Mark detection on transparent foil.
- Detection of holes and edges.

KTX

- 1:1 replacement for existing KT series - assembly compatibility
- Twin Eye-Technology for better performance on glossy or jittering materials - less machine downtime and more process stability
- Multi-functional sensor adjustment for individual sensor adjustment
- Excellent contrast resolution and a large dynamic range for good performance on complex materials
- High flexibility thanks to a range of teach-in processes
- Integrated color mode - stable detection even with complex color differences
- Integrated job memory (up to 5 different formats can be stored)
- flexible process design and format change
- Diagnostics and visualization as well as easy format change via IO-Link

Roll end monitoring

Multi-function display

Area Of use:

- Detection of print marks
- Positioning tubes
- Label alignment on bottles
- Roll end monitoring

- Color control in yarn
- mounting feedback indicator
- VISTAL housing

Upload/Download Sitting By IO link

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Sensor Intelligence.
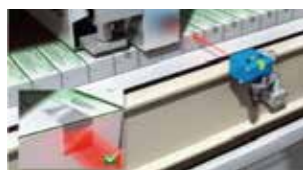Germany

W4S-3 INOX

At a glance
- Can be used in conditions above and beyond IP 69K.
- Stainless steel housing (316L/1.4404).
- Can be cleaned with steam cleaners up to 80 °C.
- Resistant to all well known steam cleaning agents.
- All models with PinPoint technology.
- Extremely quick and easy set-up with teach-in membrane or external teach-in.

Your benefits
- No restrictions in choice of cleaning procedures.
- Reliable detection of all objects.
- Lower operating costs as the sensor lasts longer in harsh conditions, leading
  to less downtime and costs for spare parts.
- Simple and fast alignment due to highly visible PinPoint light spot.
- Adjustment via a new revolutionary teach-in button consisting of a shrink
  wrapped stainless steel membrane.
- Monitoring via IO-Link (type-dependent).

CE PinPoint
IP 69K ECOLAB

Glare sensors NEW

At a glance
- Object detection and differentiation on the basis of surface gloss level
- Configurable in many different operating modes to meet the require-
ments of any application
- Integrated alignment aid
- Integrated automation functions
- Two digital push-pull outputs and one configurable input
- IO-Link provides easy data access from the PLC
- Quick and easy configuration
- Sensitivity adjusts to object properties

Fields of applications
- Pharmaceutical industry: Detection of seal labels
- Automotive industry: Detection of oil, sprays, wax and adhesives
- Machine building: Monitoring of finishes and surface coatings of metals and other materials
- Food and beverage industry: Identification of transparent foils and glossy packaging materials
- Lumber industry: Identification of lacquers, coatings and adhesives
- Electronics and solar industries: Identification of coatings and lacquers

Delta-S-Technology®
by SICK

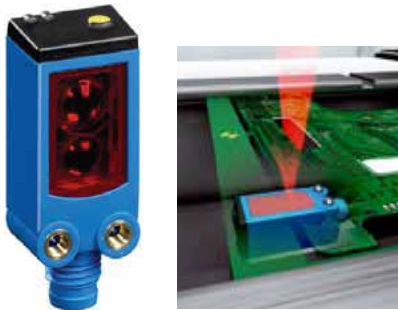CE cULus EU SIRIC optical ASIC invented by SICK

Spliceband detection   **Checking of seal**   **Detection of tamper evident labels**

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Multiline Sensor

MultiLine Sensor
MultiTask photoelectric sensors

CE ECOLAB
UL PinPoint SIRIC

Multiline Sensor

At a glance
- Two logical and intelligently linked sensors with background suppression in one miniature housing offer the highest ruggedness for object detection
- Consistent, reliable detection of structures and perforated objects such as e-cards
- Consistent, reliable detection of reflective and irregular objects such as blister packs and soup sachets on conveyor belts
- Maximum sensing range 120 mm
- Simple adjustment via teach-in button

TranspaTect
NEW

ONE THING IS CLEAR -
NO REFLECTOR NEEDED

CE □ cULus
CLEARSENS
ECOLAB PinPoint

Transpatect Sensors

At a glance
- High-performance SICK technology
- No reflectors required
- Existing machine parts are used as reference target
- AutoAdapt for continuous threshold adaptation
  in contaminated conditions
- PinPoint LED with bright and precise light spot
- Easy-to-use teach-in button
- Status LEDs visible from all sides
- Rugged metal housing (PTFE coating available on request)

DeltaPac
NEW

BRIDGING THE GAP

CE PinPoint ⦾
IO-Link UL

Delta Pac

At a glance
- Delta-S technology®: four PinPoint emitters and two receivers combined with
   SIRIC® and distance measurement technology
- Direction-independent object contours with radius up to 20 mm
- For conveyor speeds up to 1.2 m/s or production capacities up to 55,000 packages per hour
- Pre-configured sensors and individual setting via IO-Link
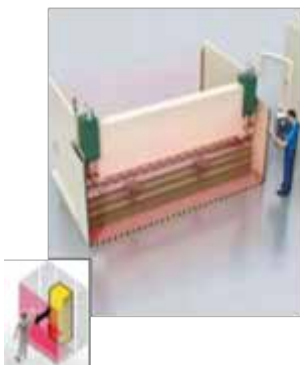- Compact housing (42 mm x 42 mm x 45 mm) with an IP 67 enclosure rating

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safetyPLUS® – we close gaps in safety

safetyPLUS®

SICK owners more than 65 years of experience in the area of safety solutions, SICK developed the very first light curtain for accident prevention on machinery back in the 1950s. With plenty of expertise, we continuously work on improving our safety products and solutions in order to provide you with crucial benefits when using SICK safety products and solutions.

Use our Safety Solution assistant. It guides you from your safety task to a product recommendation for safety sensors and safe control solutions.

OPTO-ELECTRONIC PROTECTIVE DEVICES

Opto-electronic protective devices from SICK are the first choice for maximum machine and system productivity. Unlike fences and doors, they do not disrupt handling or material transport and allow a better view into the machine room. SICK's comprehensive portfolio is ideal for hazardous point protection, access protection, and hazardous area protection. The SICK's proprietary interface, EFI, offers additional process optimization.

Hazardous point protection with hand and person detection

Enables unrestricted access, frequent interaction and an unimpeded view into the machine.
with presence detection, automatic restart con be initiated.

Multi-sided access protection with person detection

The worker interacts with the machine regularly. But not frequently. Safety laser scanners or multiple-beam systems detect a person entering the hazardous area from several sides. Enables unrestricted access to the machine from several sides and an unimpeded view into the machine.

One-sided access protection with person detection

The worker interacts with the machine regularly, but not frequently. Safety laser scanners or multiple-beam systems reliably detect persons when entering a hazardous area. Enables unrestricted access and an unimpeded view into the machine

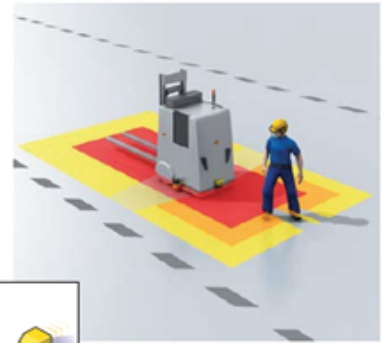#### Hazardous point protection with finger or hand detection

Enables very frequent operator/machine interaction and an unimpeded view
Supports high productivity
The distance to the hazardous point is reduced to a minimum

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Mobile hazardous area protection with person detection when approaching

Protection of persons while vehicles are moving. With a detection capability of up to 70 mm and respective mounting height, human legs are reliably detected.

Benefits

- Reduced downtimes and wear caused by frequent braking
- The minimum distance can be automatically adjusted to the speed

One-sided access protection with differentiation between persons and material

For muting, entry/exit monitoring and machines with automatic material transport systems. Safety laser scanners or multiple-beam systems reliably detect a person.

Benefits

- unimpeded material transport supports high productivity

Stationary hazardous area protection with person detection in the presence

The worker interacts with the machine regularly, but not frequently. The view into the hazardous walk-through area can be restricted. With a detection capability of up to 70 mm and respective mounting height, human legs are reliably detected.

Benefits

- Combined approach and presence monitoring
- Enables unrestricted access to the machine.

SAFETY SWITCHES

Safety switches are indispensable in any application where safety is required for people and machinery. They are used for monitoring movable physical guards, determining the position of dangerous movements, and the safe stop function. The portfolio is divided into electro-mechanical and non-contact safety switches, safety locking devices, and safety command devices. In conjunction with safe control solutions, SICK offers ideal complete solutions from a single source.

Application areas:

Door monitoring without locking

Door monitoring with locking

Safety commands

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Safe control solutions

As well as focusing on increasing productivity, intelligent machine design also delivers optimum quality and safety sens: Control – safe control solutions by SICK meet these requirements. The product portfolio includes safe series connection, safety controllers and safety relays. The products impress with easy commissioning, modularity, and optimum integration into automation processes – for optimum interaction between human and machine.

The benefits of sens:Control – safe control solutions from SICK at a glance

Complete solutions from a single source
Products, services and expertise in the field of safety guarantee future-proof success.

Increased productivity
Prevention of unintended shutdowns, shorter cycle times and shorter periods of downtime due to intelligent safety concepts.

Cost benefit
Reduced implementation and installation work as a result of coordinated safety components from SICK.

Simplified certification process for plants
Safety components or complete safety solutions from SICK have already been certified by external bodies.

Electro-mechanical safety switches

Electro-mechanical safety switches monitor movable physical guards both efficiently and reliably. The portfolio consists of three product groups: safety position switches, safety hinge switches, and safety switches with a separate actuator. This variety ensures the right solutions are available for a range of applications. In conjunction with sens:Control – safe control solutions, SICK offers ideal complete solutions from a single source.

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Encoders and inclination sensors

With customer-oriented products, SICK-STEGMANN has been an indispensable partner in industry for over five decades. Complex, high-tech Encoders and Motor Feedback Systems meet customer requirements in the best ways possible.

Benefit from our extensive know-how in many different applications: for speed and position measurement in electric drive technology, with maximum precision.

| DBS36 | Inclination sensor | DFS60 | Safety Encoder | DBS50 |

∗ Rotative and Linear Encoders:

Highly accurate path and angular measurements.

Path, orientation, angle – an encoder is unbeatable when precise position determination is required in industrial automation. The same applies for rotations and r.p.m., speed and acceleration. Utilizing the principle of photoelectrical scanning of optical reference patterns, the resolution properties of these sensors are in the micrometer range for path measurement and within a range of few thousands of a degree for angular measurement. Simple tasks can be handled like child's play.

Absolute measuring encoders have a major advantage over incremental encoders:

They do not need a reference run.

Wire draw encoder

Ethernet absolute encoder

IO-Link **CANopen** **SSI**

EtherCAT **PROFINET** **PROFIBUS**

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✳ Programmable Encoder

High-resolution, programmable encoder for sophisticated applications
- Compact installation depth
- High resolution up to 16 bits
- Optionally programmable: Output voltage, zero pulse position, zero pulse width and number of pulses
- Connection: Radial or axial cable outlet, M23 or M12 connector, axial or radial
- Electrical interfaces: 5V & 24V TTL/RS-422, 24 V HTL/push pull
- Mechanical interfaces: face mount or servo flange, blind or through hollow shaft
- Remote zero set possible

Fields of applications
- Applications with high resistance requirements against aggressive substances such as cleaning agents or salt
- Particularly suitable for use in the food and drink industry, for packaging machines, in medical technology, and in outdoor applications in ports or offshore plants
- Applications in factory and logistics automation for measuring of position, speed and distance: e.g. in printing machines, textile machines, wood processing, packaging machinery
- Precise speed measurement on conveyor belts
- Monitoring conveyor belt operation during material handling

Bulk Measuring

Speed Monitoring

Measuring Length

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✳ Distance sensors:

Product description:

Clever sensors maintain distances.

Maintaining the right distance is often important.

Sometimes it is the decisive micrometer, sometimes a kilometer.

Regardless of how much distance you need.

From the position of cranes, automated guided vehicles and high-bay stackers, through the monitoring the filling levels and the regulation of slack, down to the detection of the smallest of parts. You will find something suitable here.

✳ Non-contact, precise distance.   ✳ Measurement with red or infrared laser light.

✳ Long ranges.   ✳ High resolutions.

✳ Easy handling by means of programmable parameters or teach-in.

Application:

**Position detection
of trains at stops**

Stack positioning

**Measuring the diameter
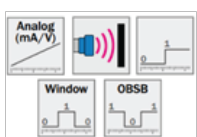of the paper roll**

✳ Ultrasonic Sensors:

Product description:

- Non-contact detection, distance measurement of objects and detection of double sheet and incorrect sheet.
- Also detect transparent object & liquids.

UM30
Ultrasonic sensors :

At a glance
- Range up to 8,000 mm.
- Display enables fast and flexible sensor adjustment.
- Immune to dust, dirt and fog.
- Available with combined analog and digital outputs.
- Adjustable sensitivity.
- Three operation modes: Distance to Object (DtO),
  Window (Wnd) or Object between sensor and background (ObSB).

Application:

**Level measurement
during material handling**

**Level measurement
during material handling**

**Docking the passenger
boarding bridge to the aircraft**

• Automatic Identification Solutions:

AGS offers highly reliable solutions and systems for your code reading and quality control challenges.

At a glance:

- High-speed localization, inspection, identification and measuring.
- Integrated solutions including both electrical and mechanical integration.
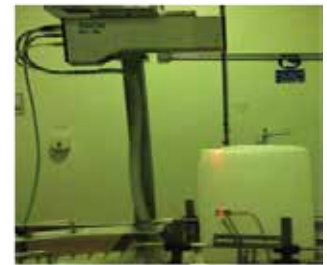- Stand-alone systems or retrofits.
- World-class components.

Benefits:

- Low production costs.
- Higher quality, more complete information and tighter process control.
- Increased productivity.

Stand-alone system

Retrofit system

✳ Applications

1D code reading

2D code reading

Optical Character Recognition

Cap presence verification

Blister pack inspection

Cap integrity verification

✳ • References

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* Machine Vision

MORE THAN A VISION

SICK supports you to realize your vision. Our broad 2D and pioneering 3D vision portfolio based on decades of innovation leadership helps customers worldwide. Positioning, inspection, measuring and reading – all at the same time, if needed.
- They measure, localize, inspect, identify for greater productivity, improved quality. Fewer manual inspections.
- These cameras can replace a whole range of individual sensors.

Area of use:

- Food and semi-luxuries industry.
- Automotive industry.
- Electronic industry.

- Pharmaceutical industry.
- Packaging industry.
- Wood processing.

Our inspection solution

Lid Inspection

Inline Quality Control

Quality testing of seals

Sensor-Based Robot

Check of codes on packaging

Optical inline quality checking

* RFID:

Products can become "smart objects" with RFID. As the smart objects carry all product-relevant data, and this can be changed during the running process, this technology is ideally suited for decentralized control process.

Further Advantages:
- Large amounts of data can be stored.
- Readable without direct view of tag.
- Rapid due to high data rates.
- Unaffected by dirt, dampness and paints.
- High process reliability.
- Unlimited number of read cycles.

Area of use:
- Automotive industry.
- Packaging machines.
- Logistics & distribution.
- Airport luggage identification.

- Electronics industry.
- Pharmaceutical & cosmetics industry.
- Laboratory analysis devices.
- Aviation industry.

Picking the transport load

Reading Tag on airports conveyor

TAGS

READER

Fluid Sensors

Intelligent solutions for level and point level measurement

Whether for continuous level measurement, point level measurement or both – SICK offers a wide range of solutions for process engineering, storage, and protection. Based on the installation situation, medium properties, and ambient conditions, SICK provides sensors that ensure efficient processes. As the provider of one of the broadest technology portfolios, SICK brings its knowledge to the forefront

✱ Level Control for Fluids Platform For TDR(LFP)

- Intelligent solutions for level and point level measurement the clean solution
- Hygienic design,Remote amplifier, Rugged design, tolerant of foam.
- CIP/SIP-resistant
- 3 in 1: combines display, analog output, and binary output
- High enclosure rating: IP 67 and IP 69, Autoclavable.
- IO-Link 1.1
- Rod probe can be cut to length manually up to 4,000 mm

Fields of applications
- Level monitoring in buffer tanks of filling systems and filling machines
- Level monitoring in rinsing systems
- Level monitoring in CIP systems
- Level measurement in mixing systems in the cosmetics and pharmaceuticals industry
- Level monitoring in industrial processes with difficult ambient conditions

Level monitoring

✱ Liquid fork Vibrating (LFV)

The intelligent limit switch for all kinds of liquids
- Commissioning without filling
- Process temperature up to 250 °C
- Immune to deposit formation
- Very high repeatability
- Hygienic designs according to EHEDG and FDA, compatible for CIP and SIP
- ATEX approval available
- Tube extension up to 6 m in length

Fields of applications
- Point level measurement in storage tanks
- Point level measurement in release agent tanks
- Monitoring of pouring machine supply lines
- Point level measurement in CIP reservoirs
- Monitoring of hydraulic and coolant systems

Point level measurement   **Monitoring of Filling**

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* Bulk measurement"Bulk FORK Vibrating (LBV)"

Tuning forks – tough and flexible in bulk

- Solids Commissioning without filling
- Process temperature up to 250 °C
- Immune to deposit formation
- Very high repeatability
- Hygienic designs according to EHEDG and FDA, compatible for CIP and SIP
- ATEX approval available
- Tube extension up to 80 m in length

Fields of applications

- Level measurement in the material container
- Overfill protection for sawdust bunkers and silos
- Level monitoring in the dust hopper
- Overfill protection for biomass bunkers and silos

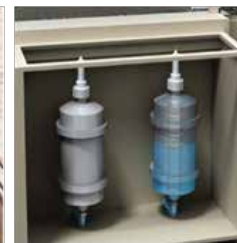**Level monitoring in the dust hopper**   **Overfill protection**

* Ultrasonic under Pressure (UP65)

Non-contact measurement up to 3.4 m operating distance / 8.0 m scanning distance limit

- Pressure resistant up to 6 bar
- 3-in-1: Continuous measurement, switching signal, and display
- IP67 enclosure rating

Fields of applications

- Level measurement in the material container
- Corrosive chemical level measurement
- Filling level measurement
- Level measurement during material handling

Level measurement during material handling

Temperature Sensors

With a variable product portfolio of insertion thermometers, SICK offer high-grade solutions for the contact temperature measurement in liquids as well as in gases. The SICK temperature sensors use platinum elements for accurate one word measurement across the entire temperature range.

The platinum elements are characterized by their long-term stability, high measurement accuracy and linearity. the correlation between the resistance of the Pt100 and Pt1000 element and the temperature is given by the norm IEC 60751. A Pt100 element has a nominal resistance of 100 ohm at a temprature of 0°C.

Besides the direct electrical connection to the platinum element, there are high-graded transmitters available with a standardized 4 mA ... 20 mA output signal that is proportional to the applied temperature (2-wire). The 4 mA ... 20 mA output signal allows interference free-signal transmission even across larger distances.

TBT

TCT

TSP

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FIOW Sensors DOSIC
The compact stainless-steel sensor for flexible flow measurement

At a glance:

- Flow measurement for water and oil-based liquids
- Seal-free stainless-steel 316L sensor with Ra ≤ 0.8
- Straight, self-draining measuring tube
- Compact design with short installation lengths
- Configurable digital outputs
- Temperature measurement
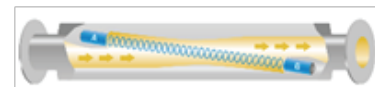- IP 67/69 enclosure rating, CIP/SIP-compatible, IO-Link version 1.1

Flow measurement of the medium

Ultrasonic technology

Sick - DOSIC® in the food industry

Your Benefits:

Flexible measurement system for all industries and liquids
- Versatile use for conductive and non-conductive liquids and temperature measurement
- Short installation lengths and a compact design enable installation in applications with limited space
- Food-safe thanks to rust-free stainless steel and hygienic design
- Quick installation without medium calibration
- User-friendly application thanks to rotatable housing and display
- Straight measuring tube reduces pressure loss, thus reducing energy costs

Fields of applications

- Flow measurement in the food and beverage industry
- Use in CIP systems
- Flow monitoring in rinsing circuits with demineralized water
- Flow measurement in cooling circuits
- Monitoring the flow rate in dairies and measuring systems

Hygienic design

- Meets the highest standards of hygiene: EHEDG-certified and FDA-compliant.
- The straight measuring tube prevents deposits from forming.
- The lack of moving components in the sensor ensures process reliability.
- The IP67 and IP69 enclosure rating means that a high-pressure cleaner can be used to clean the sensor.
- High product service life thanks to high-quality stainless steel.
- CIP and SIP-resistant.

Ultrasonic technology

- Measures non-conductive liquids Precisely.
- Non-contact measurement, i.e. there is no contact between the sensor and the flow media.
- Alternative to a Carioles mass flow meter.

Plug-in and measure

- Initial medium calibration replaced by Automatic sensor calibration.
- The IO-Link 1.1 interface communicates with the machine environment (Industry 4.0).
- The integrated display makes the flow Sensor easier to operate.
- Media temperature and monitoring of The density via time of flight principle.

SICK
Sensor Intelligence.
Germany

Pressure Sensors

PBS	PBT	PFT	PHT

SICK's portfolio of electronic pressure transmitters and switches can be adapted optimally to the individual customer's requests thanks to its intelligent and versatile configuration possibilities.

Thus, a wide selection of graded measurement ranges, common process connections and industry-typical output signals are available. In order to develop more application areas, the pressure sensors are also available in various precision classes, with extended temperature ranges or with flush-mounted diaphragms.

Pressure measurement in industrial applications are solved reliably and cost-effectively. Challenging measurement tasks are solved using the pressure transmitters. The equipment delivers a continuous current or voltage signal proportional to the pressure applied.

With the PBT pressure transmitter series, applications are solved reliably and cost-effectively. Challenging measurement tasks are solved using the pressure transmitters from the PFT series. The PHT series offers hygienic pressure transmitters for use, for example, in the food and beverage industry.

For the monitoring pressure, pressure switches are used. Electronic pressure switches are characterized by the digital switching outputs, which are activated or deactivated when defined, programable threshold levels have been reached.

The PBS pressure switch offers fast, safe and cost-effective operation. With its large operating buttons, the bright display panel and the intuitive menu navigation according to VDMA-Recommendation 24574-1, the unit wins you over with its ease of use.

PAC50
TURNS PRESSURE INTO COLORS

NEW

At a glance
- Electronic pressure switch for pneumatic applications
- Large display shows system pressure, output states and set switching points
- Three large function keys and intuitive menu navigation
- Measuring range for gauge pressure (vacuum and overpressure)
- Individually programmable switching outputs and optional analog output
- Installation on a mounting rail, wall or in a control panel

LFH

The level probe LFH is designed for the hydrostatic level measurement of liquids. The LFH is a water-proof pressure transmitter that is immersed into the liquid together with its connection cable to the desired depth. The LFH provides an analog electrical output signal that is proportional to the applied hydrostatic pressure and hence, to the immersion depth. The level probe is available as standard with various cable lengths from 1.5 m up to 100 m.

Your benefits
- Universal use
- High reliability
- Rugged design and high-quality materials.
- High tensile strength of connection cable.
- For cleaning purposes the probe can easily be taken out of the liquid.

SICK
Sensor Intelligence.
Germany

Laser Measurement system:

Exact distance measurement with laser measurement systems.
Laser measurement devices have special place in SICK's product portfolio.
The laser measurement devices, based on time-of-flight technology, measure the distances and profiles of target objects.

Area of use:

- Container & pallet conveyor technology.
- Collision prevention.
- Bulk material measurement.
- Automated guided vehicles.

- Indoor security.
- Traffic.
- Building security.
- Ports.

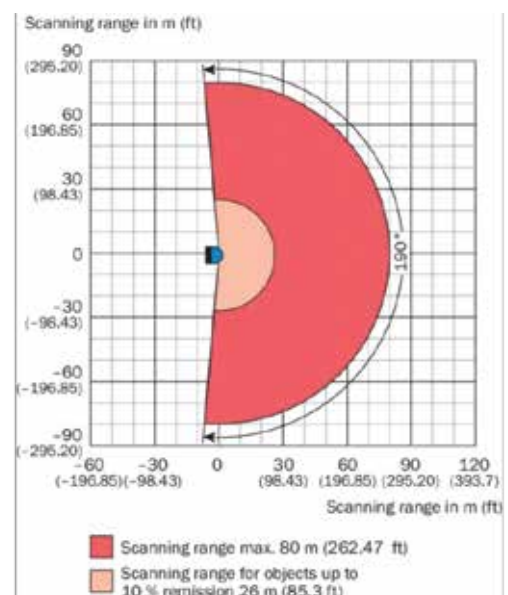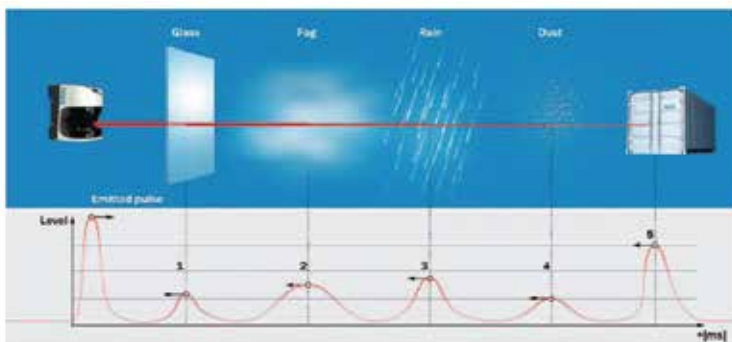## LMS5xx

Outdoor / Indoor Applications

At a glance
- Powerful and efficient laser measurement sensor for measurement ranges of up to 65 m.
- Outstanding performance in adverse environmental conditions due to 5-echo technology.
- IP 67, built-in heater, highly compact design.
- Low power consumption.
- Fast signal processing.
- Multiple I/Os.
- Synchronization of multiple sensors possible.

Your benefits
- Superior performance in a vast range of applications.
- Smallest laser measurement sensor with highest accuracy in its class.
- Fast reliable object detection in virutally any weather conditions.
- Reduced total cost of ownership.
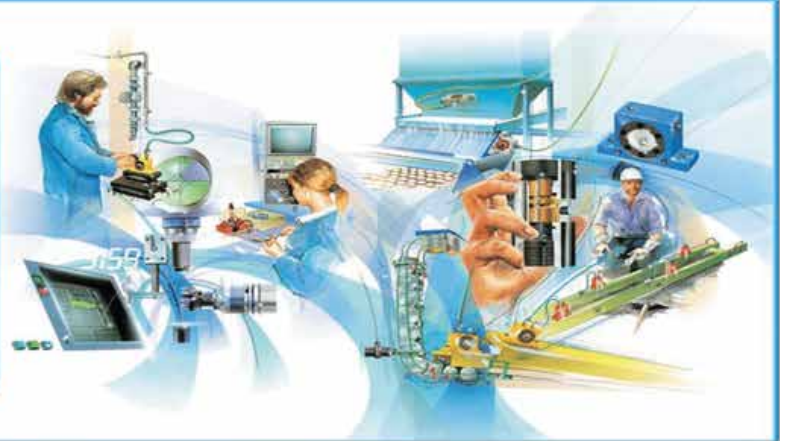- Best price/performance ratio in this sensor class on the market.

Findeva
Swiss

Findeva ®

Switzerland

Quality in vibrators

Pneumatic vibrators for industries

Types of vibration :

Rotary, for non-directional, high-frequency circular oscillations with low amplitude (Series K, R, DAR, T and GT)
Linear for linear, low-frequency oscillations with large amplitude (Series FP, FPLF, FAL and VTL)
Knocking for interval impact (Series FKL)
High-frequency knockers (Series FPK)

GT –Series
Turbine Vibrator

FP-Series
Piston Vibrator

T –Series
Turbine Vibrator

DAR- Series
Roller Vibrator

Comparison Pneumatic vs. Electric vs. Hydraulic

Type	Pneumatic	Electric	Hydraulic
Availability	good	good	poor
Easy Installation	yes	yes	no
Vibration Energy	medium	low	high
Power Consumption	high	low	medium
Instant Power at Start	yes	no	yes
Noise Level	medium	low	low
Power to Weight Ratio	excellent	poor	good
Power to Cost Ratio	excellent	good	good
Stop and Go Operation	yes	no	yes
Overload Capability	yes	no	yes
High Frequency	yes	no	no
High Amplitude	yes	yes	yes
Frequency/Force Tuning	simple	costly	costly
Irrad. of El. Man. Noise	no	yes	no
Danger of Electric Shock	no	yes	no
Life Time	high	low	high

SIEMENS PLC

SIMATIC S7-300 - Proven multiple times!

The SIMATIC S7-300 universal controller is specially designed for innovative system solutions in manufacturing, specifically the automotive and packaging industries. This modular controller serves as an ideal universal automation system for centralized and decentralized configurations. Safety technology and motion control can be integrated with standard automation into this universal controller.

SIMATIC S7-1500 – The ultimate plus for productivity and efficiency

The new SIMATIC S7-1500 controller sets new standards in productivity with its many innovations. SIMATIC S7-1500 is perfectly integrated with the Totally Integrated Automation Portal (TIA Portal) for maximum engineering efficiency. SIMATIC S7-1500 offers advanced system performance and PROFINET as a standard onboard interface.

SIMATIC S7-1200 modules at a glance

The S7-1200 controller is designed as a compact CPU, which means that IOs are already integrated. Yet the S7-1200 station can be equipped with additional IO modules to enlarge the capabilities of the PLC.

SIMATIC S7-400 process controller: a powerful solution.

Part of the SIMATIC process controller series, the S7-400 has been designed for system solutions in the fields of manufacturing and process automation. This process controller is ideal for data-intensive tasks that are especially typical for the process industry.

High processing speeds and deterministic response times ensure short machine cycle times on high-speed machines in the manufacturing industry.

SIEMENS HMI

SIMATIC HMI KTP400 Basic

Panel for HMI tasks of limited complexity. 4-inch widescreen Touch panel with color display and 4 function keys.

The KTP400 Basic is designed for the use in PROFINET networks; particularly suitable for cramped space conditions directly at the machine especially in combination with SIMATIC S7-1200 controllers but also with other controllers.

KTP1200 Basic and KTP1200 Basic DP

12-inch widescreen touch panel with color display and 10 function keys

HMI devices for tasks in the medium performance range for the use in PROFINET or PROFIBUS networks.

The KTP1200 Basic is the ideal HMI-component for the medium and upper S7-1200 controller systems. With regard to screen size and resolution the KTP1200 meets higher requirements.

SIMATIC HMI KTP700 Basic

7-inch widescreen touch panel with color display and 8 function keys

Basic Panel for HMI tasks in the lower and medium performance range with SIMATIC S7-1200 controllers but also with other controllers.

The KTP700 Basic is available in two versions: KTP700 Basic with an Ethernet interface and KTP700 Basic DP for MPI/PROFIBUS DP connections.

SIPLUS Basic Panels Coated versions for extreme environmental conditions
Benefits of the SIPLUS HMI Basic Panels at a glance:

• Resistance to aggressive chemical, biological, and mechanically active gases and salt mist
• Protected from condensation (ice formation is allowed!)
• High reliability across an extended temperature range (-25°C to +70°C).
• Flexible adaptation to any application thanks to extended site altitude from –1000 to + 5000 meters
• High productivity and investment protection through minimal downtimes and performance losses

KTP900 Basic

9-inch widescreen touch panel with color display and 8 function keys. Basic Panel for HMI tasks in the medium performance range with SIMATIC S7-1200 controllers but also with other controllers. With regard to screen size and resolution the KTP900 meets higher requirements.

The KTP900 Basic is only available in a version with an Ethernet interface for the use in PROFINET networks.

SIEMENS
Approved Partner

SIEMENS
POWER SUPPLIES

Advanced power supplies

SITOP PSU8600

SITOP PSU8200

Great performance in a very small space
 • 3-phase power supply, nominal output current 20 A or 40 A at 24 V DC
 • One or four outputs monitored for overload, individually adjustable from 5 V to 28 V
 • Integrated Ethernet/PROFINET interface with two ports
 • Easy configuration in the TIA Portal

The benefits at a glance:-
 • operational overload
 • Optional short-circuit behavior between constant current and restart
 • Optional symmetrical load distribution for parallel operation
 • Extremely high efficiency up to 95%
 • Wide temperature range from -25 to +70 °C

SITOP smart

Standard power supplies

The advantages at a glance:
 • Small footprint thanks to compact design, no clearances required at the sides
 • Signaling contact for "Output voltage OK" for easy integration into the system monitoring
 • Low energy consumption and minimal heat generation inside the control cabinet due to high efficiency.
 • SITOP PSU100S: Automatic range switching 120/230 VAC
 • SITOP PSU300S: Wide -range input 3AC 400 – 500 V
 • Adjustable output voltage to compensate for voltage drops
 • Wide temperature range from -25 to +70 °C

SITOP lite

Basic power supplies

The advantages at a glance:
 • 24 V/2.5 A, 5 A ,10 A and 20 A for industrial applications with standard requirements
 • 1-phase wide-range input with manual switchover
 • Narrow mounting width
 • High degree of efficiency
 • Green LED for "24 V OK"
 • Parallel connection possible
 • No lateral installation clearances required
 • Ambient temperature range of 0 °C to 60 °C (from 45 °C with derating)
 • Cooling through natural convection
 • Short-circuit and overload protection

SINAMICS G120C

SINAMICS G120C compact inverters 0.55 kW to 18.5 kW (0.75 hp to 25 hp)
SINAMICS G120C compact inverters continuously control the speed of
three-phase asynchronous (induction) motors and can be used in a wide range
of industrial areas. They are generally suitable for applications involving convey-
or belts, mixers, extruders, pumps, fans, compressors and basic handling
machines

SINAMICS V20

The compact SINAMICS V20 is the frequency converter for simple motion
sequences. It is characterized by its short commissioning times, easy handling,
and energy-saving functions. The converter with its nine sizes covers the power
range from 0.12 kW to 30 kW.

SINAMICS G120X

SINAMICS G120X is optimized for pump and fan applications in infrastructure
projects.
With SINAMICS G120X, users tap on the power of the elements for everyone's
benefit.
The new frequency converter comes as a complete product series – standard-
ized and seamless when it comes to all supply voltages and supply types, and
available in a power range extending from 0.75 kW to 630 kW. The devices are in
compliance with global EMC standards and motor cable lengths of up to 150 m
are permissible while maintaining EMC limit values. The integrated Safe Torque
Off (STO) safety function is certified according to SIL3.

SINAMICS V90

The drive system comprises the SINAMICS V90 servo converter and the SIMOTICS
S-1FL6 servo motor. The system features eight converter frame sizes and seven
motor shaft heights to cover a power range of 0.05 to 7.0 kW for operation in
single-phase and three-phase networks. It can be integrated easily via PTI,
PROFINET, USS or Modbus RTU. The SINAMICS V90 servo drive system enables a
host of simple motion control tasks to be implemented cost-efficiently and
conveniently with the focus being on dynamic motion and processing

SINAMICS S120

These drives come in a variety of designs and cooling types, delivering perfor-
mance from 0.16 to 6,000 HP, and feature efficient engineering and quick
commissioning resulting from innovative tools and simple wiring.

SINAMICS S110

SINAMICS S110 covers a power range from 0.15 HP (1-ph AC 230V) to 125 HP
(3-ph AC 480V).
With its built-in basic positioning system is ideal when you need to position
machines axes simply, quickly, and accurately.

ABB
VALUE PROVIDER

ABB Low voltage AC drives

General purpose drives:

Our general purpose drives offer you:

- Drives with all the essential features built-in, simplifying drive selection, installation and use.
- Intuitive user interfaces for quick drive setup and commissioning.
- Built-in features for energy efficiency helping you save and manage energy.
- Wide availability via ABB's value provider network.

ACS580

A new generation, wall-mounted and cabinet-built drive from 0.75 to 500 kW.

- Easy to select, install and use
- Scalable offering
- All essential features built into the drive
- Straightforward settings menu and assistants for fast commissioning
- Energy efficiency features for optimal energy use
- Connect to any automation system or use stand-alone
- Wide availability and support
- Designed for reliability and consistent high quality

Compressor Application

Micro drives:

Our micro drives offer you:

- Easy integration into machines with flexible mounting alternatives and compact design
- Straightforward setup with easy user interfaces and tools
- Confidence and dependability knowing that each drive is tested before it leaves our factory
- Wide availability via ABB's value provider network

ACS150

for machine building from /0.5 to 5 hp.

- Power range 0.37 to 4 kW/0.5 to 5 Hp
- IP20 enclosure
- Scalar control
- Integrated user interface and potentiometer
- Built-in brake chopper
- Built-in EMC filter for 2nd environment

Mixer Application

ACS355

Machine builder's choice ABB ACS355 from 0.37 to 22 kW/0.5 to 30 Hp

- 0.37 to 22 kW/0.5 to 30 hp
- Optimized design for cabinet installations saves space and installation time
- Wide range of fieldbus adapters available offer flexible connectivity
- Vector control capable of running both asynchronous motors and permanent magnet motors
- Unified height and depth of the IP20 product family simplifies wiring in cabinet installations

Bottling line

ABB drives for solar pumps

From sun to socket, no one provides more solar solutions

ABB offers the industry's most comprehensive portfolio of products, systems, solutions and services to optimize the performance, reliability and return on investment of any solar installation – from residential rooftops to commercial and industrial applications and utility-grade power plants.

Half of the energy produced around the world is used to operate pumps. Compared to diesel generator pumps, the ABB solar pump drive is environmentally friendly, with a long lifetime and low maintenance costs. It is independent from the grid and produces no pollution or noise. Typical applications are irrigation, community water supply, fish farming and agriculture.

The drive has many solar-specific and pump control functions, such as built-in maximum power point tracking and dry run detection, as well as sensorless flow calculation.

The maximum power point tracking (MPPT) ensures you to get the best output power possible from your solar panel and it maximizes the performance of your pump along the day while the automatic start and stop with solar radiation can save money and fuel during daylight hours.

Connection representation
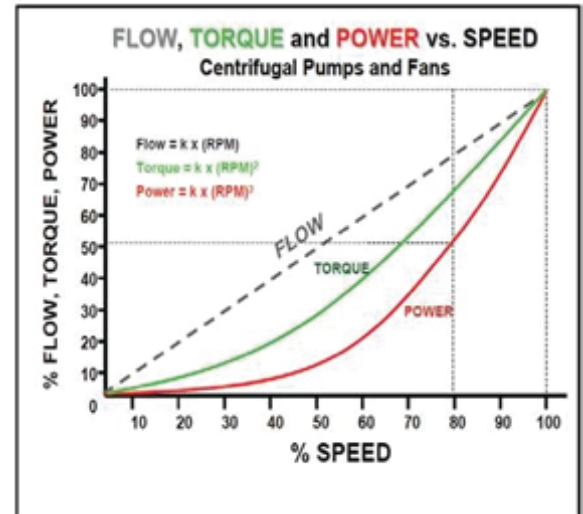Representation of the typical connection of the drive.

Applications
Typical applications are irrigation, community water supply, fish farming and agriculture.
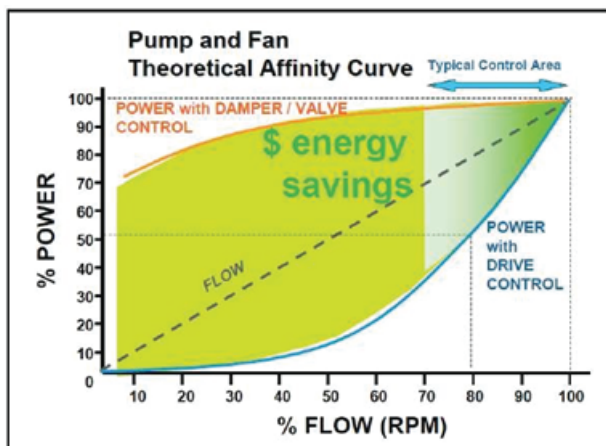
Power Saving by using ABB Drives

By slowing a pump or fan to 80% flow would result in nearly a 50% decrease in power consumption!* Taking it further, reducing speed and flow to 50% results in only 12.5% of the full speed power consumed.*, the area for savings becomes apparent.
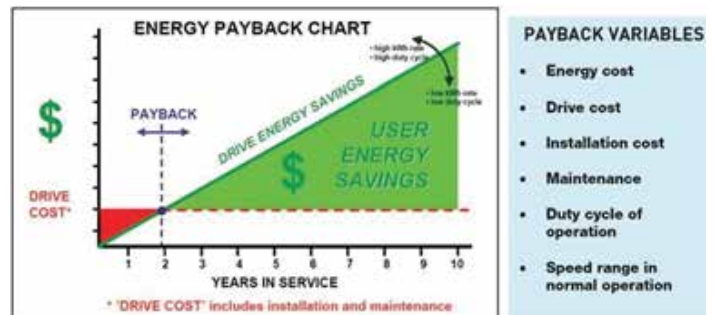

Real Payback

savings alone can provide payback in a period much less than the 2-year benchmark. Several assumptions will be made here. First, the life cycle of the AC drive is 10 years (a conservative estimate by today's reliability standards).

Second, the total installation and maintenance costs are equal to 20% of the drive's

Amount of saved power using AC drives

SANYO DENKI
SANMOTION
AC SERVO SYSTEMS

AC SERVO SYSTEMS
SANYO DENKI SANMOTION AC SERVO SYSTEMS

AC BRUSHLESS SERVO MOTORS R2, P5, Q2, Q1 SERIES

- **R2 Series Motors :** the latest Sanyo Denki servo motor; the world's smallest
  10 poles high performance servo motor. The motor can be supplied absolute encoder.
- **Q1 Motors Series:** very compact, low inertia. Ideal for applications requesting quick
  acceleration and fast positioning.
- **Q2 Motors Series:** compact, medium inertia. Ideal for applications in which the load
  intertia exceeds the motor intertia. Very smooth rotation, even at very low speed
- IP protechion degree: IP55 to IP67 (according to the different models).
- Power range : 100W to 3000W.
- Maximum speed 6000 rpm.
- All motors are equipped with high quality connectors (Encoder, Motor Phases).
- Available wide range of fix and flex chain cables produced and checked by R.T.A.
- Standards CE/UL.

AC SERVO AMPLIFIERS - RS3 SERIES - STANDARD
INTERFACE

- 230VAC power supply, single-phase and three-phase. Separated power sections for logic/signal and power electronics. Built-in protection circuits against overload and input overvoltage.
- Integrated Closed-loop system with Position, Speed and Torque control mode.
- Pluse train control (clock + direction; forward + backward pluse; 90° phase shift) or analog signal (proportional to speed or torque).
- Dynamic self-tuning: new auto-tuning algorithms with real-time calculation of inertia. RS3-Series makes available: 5 auto-tuning modes (from Positioning to Trajectory Control), 30 levels of response for each selected mode. Shorter position settling time.
- Four integrated notch filters to remove system's resonance frequency.
- Detailed and user friensly setup by RS232 connection and Sanyo Denki R-SetUp software.
- Standards: CE and UL.

AC SERVO AMPLIFIERS - RS2 ADVANCED SERIES - EtherCAT   EtherCAT.
INTERFACE

- 230VAC power supply, single-phase and three-phase. Power sections kept separated for logic/signal and power electronics. Built-in protection circuits against overload and input overvoltage.
- Integrated Closed-loop system, available mode of operation: Position Mode, Velocity Mode, Homing Mode, Torque Mode, Cycle Sync Position Mode, Cycle Sync Velocity Mode, Cycle Sync Torque Mode
- Dynamic self-tuning: new auto-tuning algorithms with real-time calculation of inertia. RS2-ADVANCED Series makes available: 7 auto-tuning modes (from Positioning to Trajectory Control), 30 levels of response for each selected mode. Shorter position settling time.
- Six integrated notch filters to remove system's resonance frequency.
- Detailed and user friendly setup by RS232 connection and Sanyo Denki R-SetUp Advanced.
- One of the most compact EtherCAT drives on the market. In the model of 15 Amp has the following dimensions (mm): 40 X 160 X 130.
- Standards: CE and UL.

RS3 SERVOAMPLIFIERS
Speed frequency response from 2,2 KHz.
[3.3 times faster!]
230 VAC | SIL3 SAFE TORQUE OFF (STO) | USB INTERFACE | cULus

RS3 EtherCAT. SERVOAMPLIFIERS
Speed frequency response from 2,2 KHz.
[3.3 times faster!]
230 VAC | SIL3 SAFE TORQUE OFF (STO) | USB INTERFACE | cULus

RS3C SERVOAMPLIFIERS
Speed frequency response from 2,2 KHz.
[3.3 times faster!]
400 VAC | SIL3 SAFE TORQUE OFF (STO) | USB INTERFACE | cULus

RS3C EtherCAT. SERVOAMPLIFIERS
Speed frequency response from 2,2 KHz.
[3.3 times faster!]
400 VAC | SIL3 SAFE TORQUE OFF (STO) | USB INTERFACE | cULus

Stepping Motors

SANYO DENKI

Better torque, small size, high efficiency!

The better performance makes SANYO DENKI stepping motors the optimum choice for powerful, precise and reliable positioning systems allowing their use in new fields.

Highlights :

- Better performance in terms of torque and power,
 though maintaining conventional standard dimensions (NEMA).
- Lower noise at the same power.
- Less vibration generated by the motor body.
- Optimized construction in terms of precision and noiselessness.
- Higher efficiency with consequential reduction of losses.

Area of use :

- Labeling machines.
- Packaging machines.
- Printing machines.
- Ready-made clothes machines.

Stepping Motors DRIVES

X-MINDB Series Drivers

Highlights :

- Micro stepping function up to 4000 step/rev.
- Range of operating voltages 110-220 VAC
- Range of current 2.3 - 6 Amps.
- External fans not needed
- Coupling with stepping motors rated for high voltage.
- Automatic current reduction at motor standstill.
- High efficiency CHOPPER with IGBT final stage output.

PLUS B Series Drivers

Highlights :

- Built in clock source 14 to 450 rpm.
- Compact, easy to use and cost effective solution.
- Micro stepping function up to 4000 step/rev.
- Range of operating voltages 55-100 VAC.
- Range of current 2.4 - 8 Amps.
- External fans not needed.
- Automatic current reduction at motor standstill.

GMD Series Drivers

Highlights :

- Stepping motor drives with SMD technology in single EUROCARD.
- Dimensions (100×160 mm).
- Standard input and output signals.
- Operating voltage range 55-190 VDC.
- Range of current: 1.6-12 Amp.
- 200, 400 or 800 steps /revolution.
- Automatic current reduction at motor standstill.

STEP 40 Series Drivers

Highlights :

- Start-stop operation.
- Continuous operation via Enable input.
- Vary the speed via an internal or external pot.
- Strong aluminum heat sink.
- Supply (16 VDC - 40 VDC or 12 VAC - 28 VAC).
- Dimensions 60 mm x 144 mm x 60 mm.
    - Maximum current 4 A.

WIDE RANGE
Italy

Control Box for labeling machines

WIDE RANGE
Italy

It is the most advanced control system for labeling machines with stepper motors. With the support of solid mechanics and an adequate motor, it can attain speeds of 100 meters per minute, and a frequency of over 1000 operations per minute. Manufactured using SMD technology, it is based on a 16/32-bit microprocessor that can manage up to 12 optically shielded PNP or NPN inputs and + 2 relay outputs. Interfaces with the operator via a keypad and a backlit, alphanumeric LCD display.

Control Box functions

Highlights :

- Alphanumeric LCD display with 2 rows of 20 characters.
- Operation with product speed set via the keypad or encoder.
- Start delay, expressed in millimeters.
- Counter display of the labeled products,
- Stop at the end of the set production run.
- Automatic recovery of the missing label.
- Management of end-of-roll and near-end-of-roll warning.
- Application of several labels on the same product.
- Management of printing time.
- Management of formats for storing of a set of labeling parameters.
- PNP or NPN inputs plus 2 relay outputs.
- 40 formats available.
- **Available spare parts**

LCD display card

CPU card + I/O module

TOHO
Japan

Chart Recorder (paperless)

PAPERLESS RECORDER **TRM-20**

Simple & High - Performance

TOHO

TRM-20

FEATURES

- 5.7-INCH TFT LIQUID CRYSTAL DISPLAY TOUCH PANEL
- SELECTABLE FROM INPUT CHANNEL 6, 9 AND 12CH
- MULTI-RANGE INPUT
- PC SUPPORT SOFTWARE SUPPLIED AS STANDARD ACCESSORY
- ETHERNET COMMUNICATION FUNCTION SUPPLIED AS STANDARD EQUIPMENT
- DATA STORAGE TO LARGE CAPACITY SD CARD
- CONFORMS TO IP65 WATER-PROOF/ DUST-PROOF (FRONT PORTION)
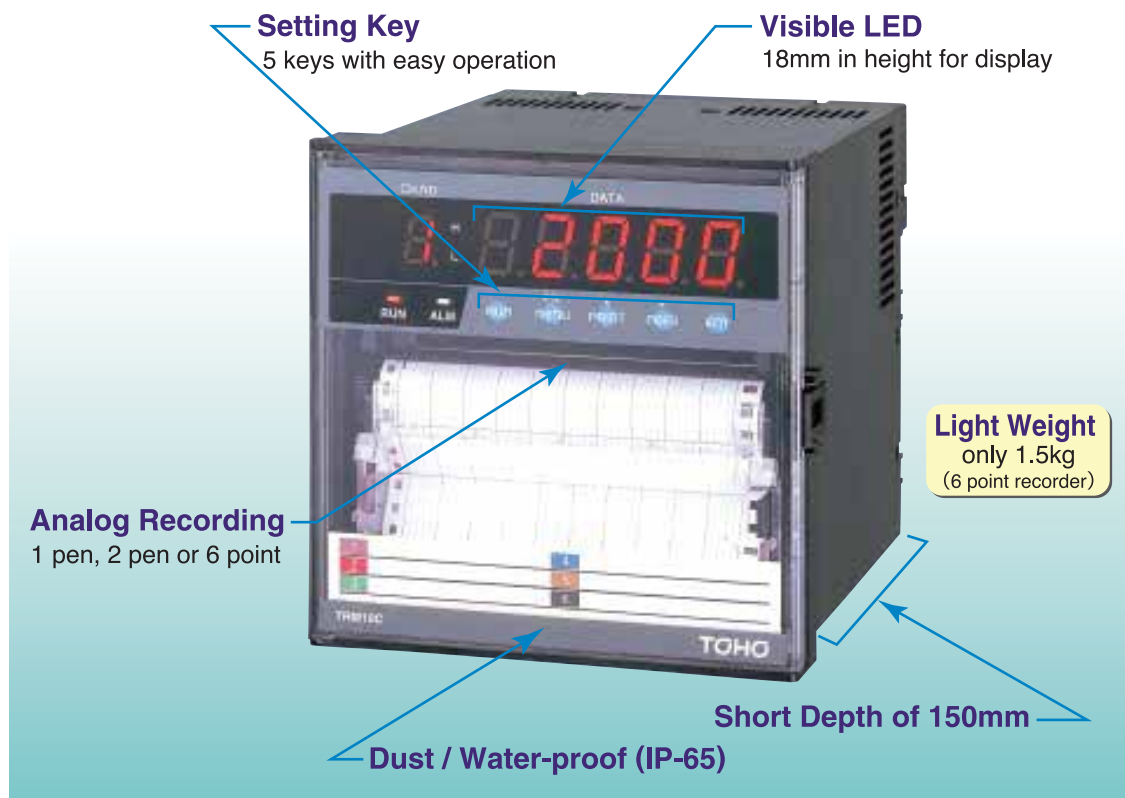- CONFORMS TO CE STANDARD

EASY OPERATION
BY TOUCH PANEL

LARGE CAPACITY DATA STORAGE
TO SD MEMORY CARD

TOHO ELECTRONICS INC.

Chart Recorder (paper)

MINI RECORDER

TRM10C

Lower Price, High Reliability & User-friendly !

Setting Key
5 keys with easy operation

Visible LED
18mm in height for display

Light Weight
only 1.5kg
（6 point recorder）

Analog Recording
1 pen, 2 pen or 6 point

Short Depth of 150mm
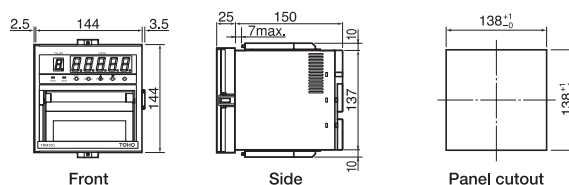
Dust / Water-proof (IP-65)

FEATURES

■ Compact size
144 (W) ×144 (H) ×150 (D) mm

■ 1.5 kg (6 point recorder) of lightest
weight on an industrial level

■ Universal input and range

■ RS-232C communication function
provided for in standard specifications

■ Option (detailed on the reverse of
Ordering Information) & consumables
available

■ IP-65 conformed with Dust-proof &
Water-proof

■ UL, CSA & CE approvals

Consumables

1. Chart Paper
(HZCGA0105EL001)

2. Ribbon Cartridge for 6 Point Recorder
(WPSR188A000001A)

3. Ribbon Cartridge for 1 Pen/2 Pen Recorder
(HPSR001H0002C)

4. Cartridge Pen
(WPSR196A000001A; No.1)

5. Cartridge Pen
(WPSR196A000002A; No.2)

6. Shunt Resistance
(HMSU3081A01)

Dimensions
Unit: mm

Front	Side	Panel cutout
2.5 144 3.5	25 150 7max.	138⁺¹₋₀
144	137	138⁺¹₋₀

TOHO ELECTRONICS INC.

TOHO
Japan

Digital temperature controller

✱ Digital temperature controller TTM-200 series:

Controllability htas improved by employing a new PID algorithm and speeding up sampling (with the shortened interval of 200 ms).
A single unit handles all input specifications due to multi-input.
It is smaller in size with the depth of 55 mm (TTM-204) and 65 mm (TTM-205/207/209), and corresponds to any application due to enhanced optional functions.
It includes the loader communication function as a standard, which alleviates setting work of various parameters. (Pay is required for the dedicated cable.)

✱ Plug-in digital temperature controller TTM-04SP:

Controllability has improved by employing a new PID algorithm and speeding up sampling cycle.
A single unit handles all input specifications due to multi-input function.
It is smaller in size with the depth of 69mm (front panel is 48mm x 48mm)
It includes the loader communication function as a standard which alleviates setting work of various parameters (under preparation. Dedicated cable is sold separately.

Rear view

✱ Digital temperature controller TTM-000 series:

Versatile Digital Temperature Controller with various functions and easy operations. It is a compact size; the depth is only 77mm. if the communication option is selected, the distance is extended up to 500 meters, and maximum 31 units of controllers can be connected with a computer at a same time, and the centralized supervision can be performed.
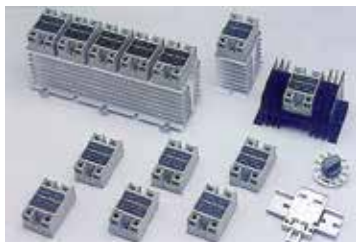Sampling cycle is 500msec (S grade is 250msec).

✱ Dual channel temperature controller TTM-509 :

Feasible to control 2 inputs maximum per unit. The versatile function, high accuracy ±0.1% and high speed sampling cycle 50msec will expand the wide application range.

Solid state relay

CAHO
Taiwan

- Load current ranges from 10 to 40 Amps.
- Internally mounted snubber circuit protection for huge current (dv/dt) application.
- Zero crossing turn-on, zero current turn-off.
- With LED display to detect the operation of devices.
- Photo-isolation, t 4000 Rms isolation.
- R series have output power 0-90%.
- Ambient temperature: 10 -55°C.
- Weight 70 g.

ags

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