fortop AUTOMATION & ENERGY CONTROL

#2

on paper.

about automation & energy control solutions

Step by step energy and power management
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fortop is **Brexit-ready**

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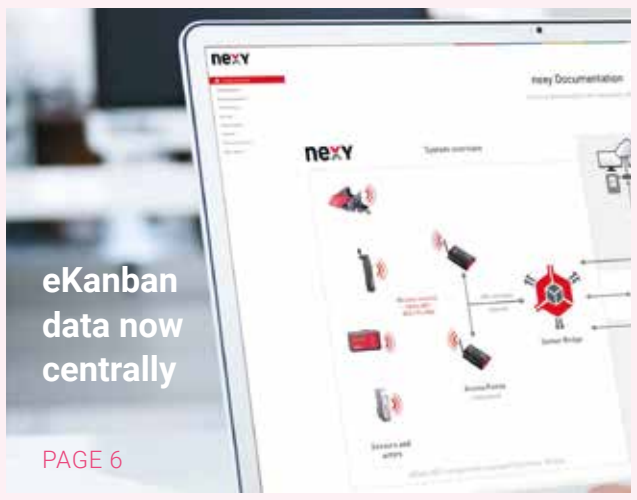

eKanban data now centrally

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vacancy
Do you have a passion for technology?

Join team fortop UK!
We are looking for an account manager.

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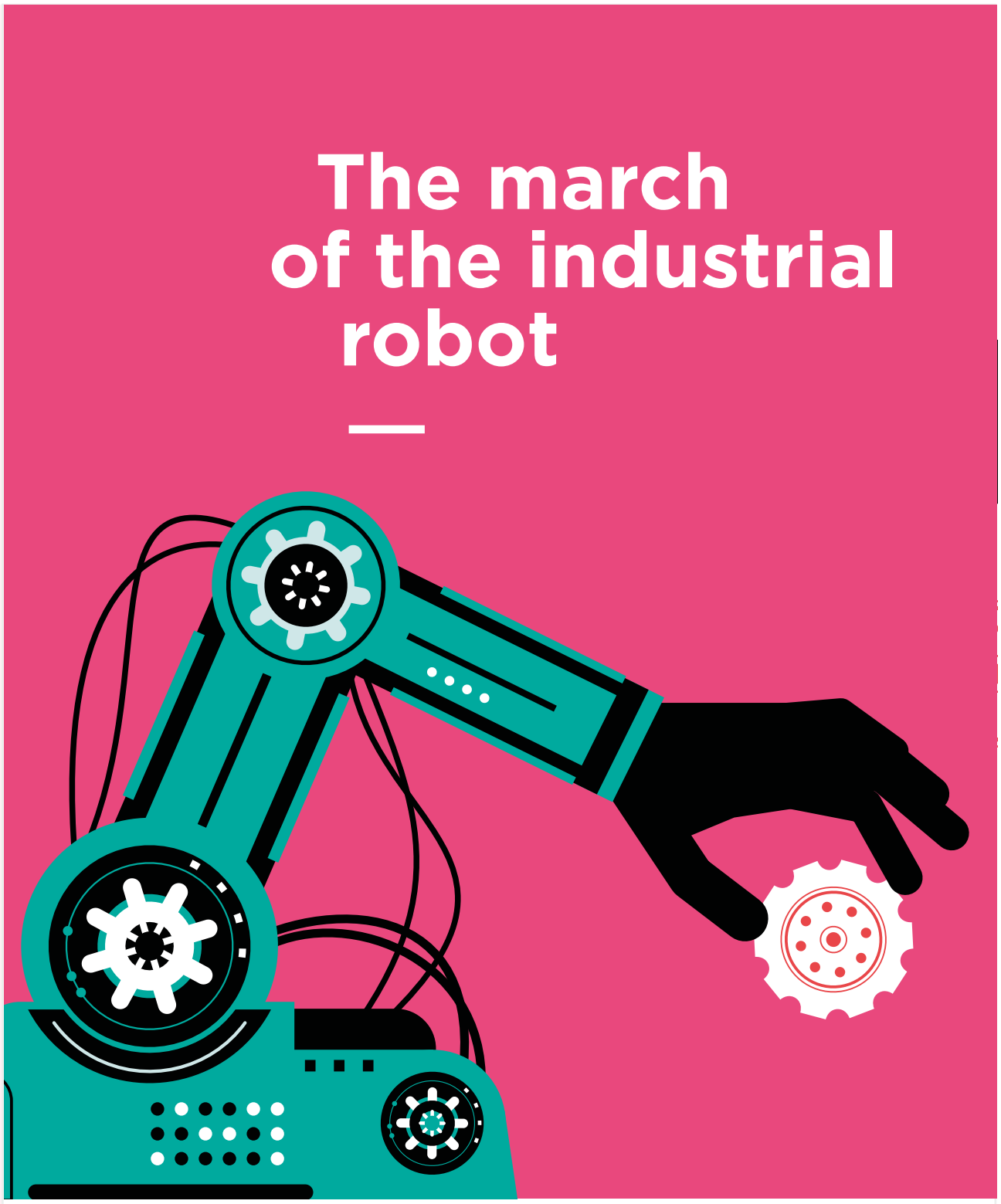
The march of the industrial robot



The “fourth industrial revolution” is rapidly gaining ground. The industrial robot is the solution for sectors that are crying out for employees. The number of robots in construction will grow in the coming years, while experts expect that healthcare and education will also make use of the possibilities. Incidentally, research shows that robots worldwide have no consequences for employment. 87 percent of global employers expect their workforce to stay the same or grow for the third year in a row and the main reason for this would be automation. >>

column
We are Brexit-ready

2019 has been a particularly interesting year in terms of business uncertainty and a nation divided by opinion the team at fortop have been busy getting on with how we approach a new era of business opportunity which lies ahead in 2020 and beyond for the United Kingdom. What it means for our customers? You can read more on page 8: **fortop is Brexit-ready**.

In this second edition of the fortop news paper, a large number of our "A" brand suppliers are show casing their latest technologies in machine safety, connectivity and motion control.

We also have some exciting news with a new co-operation for the UK market in terms of energy control solutions & power quality management: **Janitza** (see page 3). This new partneship brings a host of new possibilities for our customers.

When you have question regarding the subjects in this paper, please feel free to give us a call or send an email. We are happy to answer your questions.

With kind regards,

Steven Hill
managing director
fortop UK

credits

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video
Experience fortop

A green building hightlighted in festive pink!

During the opening, the office was highlighted in pink.

In 2012 we started working in the office in Zwartsluis the Netherlands with 12 people. In 2018 there were 32 employees. We have outgrown our office. So we decided to expand. We wanted to do that "green".

We want to collaborate sustainably with our people, our suppliers, our customers, but certainly also with our office building. The building is made of high-quality materials and a love of details. The concrete skeleton of the building is sustainable. It was possible to be flexible with the inner and outer construction. Concrete is robust, requires no maintenance and offers a lifespan of more than a hundred years. We used baked clay stones on the outside. It keeps the heat in during cold periods and in the summer it keeps heat out.

We like to visit our customers, but then it is not easy to explain what we can do. We make it easier for visitors to explain what we are doing through our demo setups. We organise various workshops in our building. We always want to continue to develop. That is why "never stop learning" is our slogan.

Our warehouse is a closed warehouse, so that we can guarantee reliability to our customers. If a product is ordered, we know for sure that it is in stock. An optimal order flow is of great importance to us. That is why we work according to the "single piece flow" principle.

At fortop it's all about teamwork. We use the motto "everyone is important and together we can move mountains". Our building helps us with this, all places have been created to work together and meet each other.

Sustainability and energy efficiency are spearheads in the realization of our building. The iconic roofs ensure sufficient daylight in the workplace and a clear working environment.

>> **The robot in the region**
Robotization is no longer reserved for multinationals and large groups. The time of threshold fear and waiting is over. The robot finds its way to "the region". Entrepreneurs are increasingly discovering the benefits and realizing that industrial robots strengthen their competitive position. They embrace the opportunities of robotization and prepare their companies for the future that is already present for more and more companies.

Training young people and employees is crucial. Companies need professionals who can develop, control, program and operate robotic machines.

The flexible factory
The advance of the robot is also rapidly changing the workplace. An important development in the industry is the emergence of the so-called flexible factory. Fixed production lines that make the same numbers of a certain product 365 days a year, are disappearing more and more. With their production halls, companies are increasingly responding to sudden changes and changing markets. The device must be adaptable quickly. This means that the layout of production lines must be able to be changed quickly and easily.

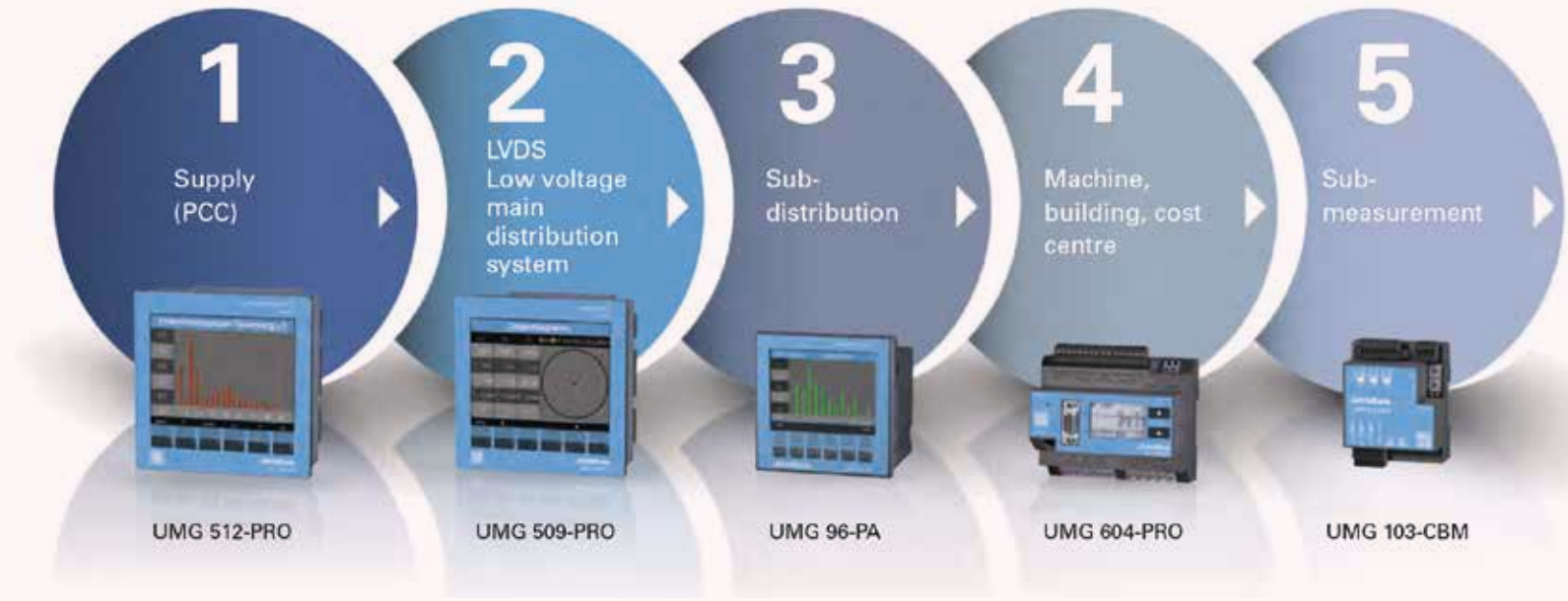
The industrial robotics and the flexible factory will change the appearance of the industrial spaces as we know them in the coming years. The changing workplace creates new issues. An important theme in this is the safety of employees who operate dangerous machines and robots. They must have safe access to such a working environment, while also preventing unwanted or uncontrolled access.

ESCHA connectors for robot applications

receiver for wireless data transfer from steute

“If you can measure it, you can improve it”

Energy management, power quality monitoring and analysis by Janitza



Janitza develops and manufactures the entire product range (hardware and software) in Germany at the Lahnau site. The label “Made in Germany” is considered as of the most popular labels in the world, but fewer and fewer companies possess this seal of approval today. “Quality”, “sustainability” and “safety standards” are relevant categories of this seal. Thus the goal of Janitza is not only to offer the highest quality. With Janitza products, solutions and services, users can increase their energy efficiency and measure, analyze and optimize the quality of their energy flows. At the same time, plant and personal safety are maximized.

Energy management, power quality monitoring and residual current monitoring in a single system environment. That is what the comprehensive Janitza product range stands for. The software and hardware components are optimally tailored to one another. Profit from our total competence and comprehensive services across the entire product life cycle.

The reduction in energy costs can be a significant competitive factor, because in many industry sectors the energy costs constitute a relevant item on the company results. In this regard, the ISO 50001 standard aims to establish the framework conditions for an operational energy management system. Energy flows must be made transparent and they must be analysed, in order to sustainably save costs and decisively reduce energy consumptions and CO2 emissions. It is also possible to identify problems in the energy supply with an energy management system.

Janitza®

In response to these requirements, Janitza has developed the ISO 50001-certified GridVis® software. The software offers the user the tool required for establishing an efficient, manageable and consistent energy management system. In this way, measures can be developed for the improvement of the energy efficiency of processes, systems and devices with the help of the measured data provided. The effect of the implemented measures is continuously monitored by the energy monitoring system, the results are verified for example with the help of key figures (KPIs) and quantity flow diagrams (Sankey).

fortop is solution partner of Janitza.

- **Energy management systems increase the (energy) efficiency of processes, systems and devices (ISO 50001, VDE 0100-801).**
- **Continuous energy monitoring helps with the rapid identification of significant deviations in the power supply. Furthermore, this monitoring also supports fulfilment of the taxation and regulatory aspects (German law on renewable energy sources, peak balancing per German electricity tax law, etc.).**
- **Through transparent energy flows it is possible to reduce the costs, minimise maintenance outlay and identify energy-intensive consumer devices.**
- **The visible reduction of energy consumptions and CO^2 emissions makes a contribution to environmental protection:**
- **MID-compliant devices from Janitza can be used in combination with GridVis® software for cause-related cost centre management. MID is a measuring instruments directive of the European Parliament, which includes such requirements as manipulation security and therefore provides legal certainty.**

Cutting sea wind and splashing sea water

steute test Extreme switches at the North Sea

Most Extreme switches are suitable for use in damp, wet and even salt water environments. Corresponding corrosion tests, for example the salt spray test according to DIN EN ISO 9227, monitor the quality of such switches. But how do these switches perform in practice? How are they affected by waves or underwater pollution, for example? These are crucial questions, because the Steute Extreme switches are often used in maritime applications - on ships, on drilling platforms, in mooring systems or on container terminals in seaports.

To find answers to these questions, the Fraunhofer IFAM (institute for production technology and advanced materials) in Bremen has commissioned a 1-year exposure test at its location on the small German island of Helgoland. The test procedure was as follows: different products from each selected Extreme product group (position switches, foot switches and pull cord switches) were attached to the south pier, where the North Sea waves splashed them for one year. Some devices are installed in the tidal range, which means that they are sometimes submerged and sometimes not. Possible limitations of the switches in moving salt water thus become clear. Where would pollution be evident and would this affect the functional operation of the switches?

These are environmental conditions to which switches are hardly exposed in practice. Rainer Lumme, extreme product manager Extreme: “The purpose of these tests was to expose the switches to conditions that were so extreme that they went beyond all tests that the approval authorities normally perform. As a result, we understood the weaknesses of the switches better.“

The tests on the North Sea have now been completed. The final IFAM report is not yet available, but the appearance of the switches after a year of exposure to salt and splash water and previous functional tests have revealed that the switches in all different series are salt water resistant. The switches are still fully functional after 12 months. Even the label and the lasered type plates are still legible. The pre-treated and powder-coated housings and the interior of the switches (contact blocks, plungers and pedal shafts) are all free of corrosion after the test. This is proof of the high quality of both the surface coatings and the seal.

steute will use the IFAM test results for the optimization of existing series of switches and for the development of new “Extreme” devices. Rainer Lumme: “We now have the confirmation that we can use the plastics that we use for our enclosures and actuators for unlimited applications. We will therefore intensify our efforts to replace metal with plastic - also in our heavier-designed switches.“

Safe wireless monitoring multiple AGV’s in warehouse automation applications

When it comes to battery powered shuttles such as AGVs (automated guided vehicle) or AMRs (autonomous mobile robots), several common subjects become challenging. Safety for example: the immediate power disconnection of an entire fleet of AGVs is not available. Safety stop is usually well designed at the AGV level as an individual feature, but it is rarely designed at the system level as a global feature.

Global safety is required, among others, to manage the risk of high fire load density in warehouses and Automated Storage and Retrieval Systems. Power outage, process breakdown and maintenance operations also require global safety solutions. Wireless and contactless shuttles need to be safely stopped, often in a controlled manner so as to create stop patterns such as emergency evacuation routes. While stopping, any highly productive installation should already prepare itself for instant restart, even during emergency situations.

RSRDevice is the latest solution by JAY Electronique providing TÜV certified SIL3 /PLe global emergency stop for AGVs and AMRs with dedicated intralogistics features. Suitable for stand-alone solution or fully interfaced with any type of controller onboard the AGVs. Numerous specific settings parameters make it a fully customizable solution on site for a very efficient global safety.

The connection makes the difference
And the ESCHA connectors too

ESCHA developes cables and connectors for many different applications. For connecting a sensor, flexible cabling in robot applications, connecting in wet environments or at high temperatures and for installing a pluggable power supply network. You can't think of it that crazy. And do you need something that is not standard? **Then ESCHA will customize it for you.**

ESCHA data is available in the eCl@ss and ETIM standardized classification system.

Automation line cables

The automation line cables combine typical requirements that are set within the automation industry into one product. Halogen, PVC, silicone-free cables, adapted cables for drag chains, chemical, microbe and hydrolysis resistant cables. The automation line cables have a protection rating of IP65, IP67 and IP68 and are UL certified. The extensive automation portfolio includes connectors with LED, with connections for external cable protectors, 360 ° shielded connectors with the 2SSK patented by ESCHA. The automation line cables have M12x1 connectors, M8x1 connectors and Ø 8 mm snap connectors. They are resistant to temperatures of -30 ° C and +90 ° C.

The Automation Line Robotic cables, designated S7400, are round M12x1 and M8x1 connectors with flexible, silicone and halogen-free cables. The S7400 series cables are specially adapted for applications in robotic, handling and assembly technology. The Robotic cables can be recognized by the orange color of the cables.

Food and beverage cables

In the food industry, the specific requirements of the machines and installations are much higher than those of the regular industry. ESCHA connectors with "Hygienic Design" make it possible to use components in applications where they come into contact with food. Contact between materials and the food to be processed is prevented and a high protection against cleaning agents is guaranteed. The food and beverage cables have a protection rating of IP65, IP67, IP68 and IP69.

High temperature cables

Thanks to the heat-resistant materials of the "high-temperature" cables from ESCHA, we guarantee an optimum and reliable operating mode, even in exceptional temperatures. Permanent ambient temperatures of -20 ° C and +150 ° C and short-term temperatures of +200 ° C are no problem for the high temperature line. The high temperature cables are available with 3, 4, 5, 8 or 12-pin M8 or M12 connectors.

M12 Power cables and splitters

Power in an installation was routed from a central cabinet to decentralized points with cables for a long time. From the central cabinet, a separate cable was required per connection to a motor, valve island or valve. With M12 Power cables, power transmission is routed through the entire installation with one cable from the central point. With the help of T, H and h splitters, the power transfer is split off on the way to various decentralized points. In addition to saving costs, it also provides a clear situation.

Industrial Ethernet cables | RJ45 | M8 | M12

Industrial Ethernet cables can now be found in any machine or working environment. The Ethernet cables from ESCHA are available with 4-pole (D-coded) or 8-pole (X-coded) M12x1 connections, just like the chassis connections, self-connectable connectors and printed circuit board components. RJ45 patch cords ensure high quality in data transfer. The Ethernet cables are available in the Cat5e data cable, Cat6A data cable and Cat7 data cable. The Profinet Robotic Ethernet cable is resistant to more than 5 million bending and turning cycles.

Profibus cables

Profibus cables must meet bus-specific requirements of the Profibus / Profinet organization (PNO). The ESCHA cables meet these requirements and are available in the following versions: 5-pin (B-coded), M12, T-splitters, Y-splitters, chassis parts and receptacles. All connectors have a seal up to IP68 and a 360 ° shield and comply with IEC 61076-2-101. The Profibus cables are resistant to temperatures of -30 ° C and +90 ° C.

CANopen-cables & DeviceNet-cables

User organization ODVA prescribed a number of requirements for CANopen cables and DeviceNet cables:

- 5-pin M12 connections
- PUR cable
- halogen-free cables chassis parts or receptacles
- shielded cables
- twisted cables for signals and power voltages with stripped cable ends

EtherCAT-P connectors

Thanks to the four-pole connection cables and connector chassis parts with P-coding, data and power supply can be connected simultaneously via one M8x1 connector. The new EtherCAT P connectors have a 360 ° shield according to the IEC 61076-2-104 standard.

eKanban data now centrally via “nexy”

automated inventory management through wireless sensor network

by: Andreas Schenk - product manager Wireless at steute

Seventy years ago, the Japanese inventor Taiichi Ohno developed the Kanban principle. This created a completely new and simple method for managing material stocks for Ohno’s employer Toyota. At the same time, he introduced the “pull principle” for intralogistics: the material flow is not “pushed” into production or assembly by central control systems. Instead, the Kanban cards ensure a streamlined supply of materials that are transported to the production area on the shop floor when they are actually needed.

This principle is just as relevant nowadays as it was in the 1940s. Nowadays, the process is no longer only via paper order forms, but digitally via mobile applications, for example. Signals can be activated manually via a terminal or automatically, via switches or sensors that the check and monitor occupation of the Kanban rack. In this way, the supply data can be integrated directly into the IT system in order to streamline production processes, reduce the stock of materials and parts and avoid overcapacity and surpluses.

Mobile eKanban racks

An entirely new development is the trend towards mobile eKanban racks. They offer flexibility, transparency and accessibility for stock management and intralogistics. In addition, they make completely new production concepts possible. This trend is particularly and very intensively driven by the car industry. eKanban solutions are also increasingly integrated into other industries. Manufacturers and users of such solutions now face the question of how these location-independent systems can be integrated into an uninterrupted flow of information.

Wireless signals replace Kanban cards

Replenishing assembly workstations using an eKanban system requires sensor technology in the Kanban racks and communication with parent IT / OT systems. A solution with easily configurable applications is now available for this. The answer is a wireless network. eKanban is implemented by connecting access points, each to 100 (wireless) sensors (position switches, foot switches, magnetic sensors). The signal range is a maximum of 700 meters outside and about 60 meters inside. A large number of access points can be integrated into one network.

SensorBridge interface

A software application with the name “SensorBridge” is used as the communication interface for the customer application. This is installed on a central access point. The access point with SensorBridge software continuously communicates with the sensors and switches that are integrated in the workplace. The access point with SensorBridge installed acts as a gateway between the customer’s workplace and overlying IT systems (PDA, ERP, WMS, MES) and, if necessary, also for cross-site

data services via web services. This setup is an essential prerequisite for device compatibility and the rapid implementation of IoT applications at any location. Configuration via a central dashboard makes a quick adaptation of the network possible when adapting the application. This makes the integration of new wireless switches and sensors in the network a lot easier.

Hardware for eKanban applications
In addition, a wireless sensor is available that has developed specially for such eKanban applications. Via a rocker switch, this sensor detects whether a container or box has been removed from a flow rack and sends a corresponding (wireless) message to the next access point. These wireless sensors can be mounted without tools in flow racks from leading manufacturers.

Initially, these wireless networks could only be operated using the support of low-energy sWave.NET wireless technology, which has specific advantages for such applications. steute recently launched an important addition to its wireless network concept. The sensor network is now open to other wireless technologies that enable the acquisition, transfer and management of sensor data in high-end IT systems or IoT. Steute has developed “nexy” for complete, customer-specific solutions. One of the reasons behind this development was the desire of different customers to use their own existing wireless standards, such as their corporate wifi, for signal transmission.

New: easy-to-install eKanban application
Also new is an eKanban application for the wireless network that can be easily configured without programming, requiring only a short initial set-up time. Different basic configurations can be selected: eKanban with one sensor per filling path, eKanban for fast moving articles with three sensors per filling path and eKanban with manual data exchange.

Benefits for the user
Users of such eKanban solutions benefit in the long term from the benefits of the wireless network: paper-free and uninterrupted communication, transparency with regard to consumables and consumption, on-demand material flow, stable data transfer and easy adaptation to changing circumstances. Clear visualization of the current status of all eKanban stations via a central nexy dashboard offers extra transparency.

fortop is Brexit-ready

It is getting closer and closer: the United Kingdom will leave the European Union. What does this mean for everyone who does business with fortop UK? Well, basically we people at fortop had plans in place many months before leaving on the proposed date of October 31st 2019. When this date passed and this didn't happen, it gave us more time to fine tune our preparations.

No time lost!
With our new stock warehouse now complete and double the size warehouse floor space in the Netherlands we at fortop felt it was imperative to make sure we held the right amount of stock to supply our customer base in the event of this day looming. Cutting down the potential problem of delays at the UK shipping ports.

Investing in new software allows us to work directly with our courier to speed up paperwork conformity and custom checks at shipping ports allowing quick movement of goods onwards to all our customer in the UK and Ireland.

This is something we at fortop have been thinking about and implementing for a while in 2019. We could not live with the possibility of "let's see what happens when the day comes" scenario! We had planned for this day many months ago.

We still know its very early and laws and protocol can change especially in this changing UK Environment we find ourselves in, but we maintain fortop will not wait for things to happen!

We take the situation very seriously so the customer can have confidence in what we do and that we can deliver.

SIL1 Safety tilt switch in a single housing

QG40N family of sensors developed by DIS sensors comprises of inclinometers, accelerometers and tilt switches. Previously two sensors were required to achieve functional safety. Dis Sensors have now developed a new safety tilt switch in a single housing to SIL1.

When the measured angle exceeds the pre-set angle, the sensor will switch the output, so that the control unit of the application can take appropriate action (e.g. sound an alarm, restrict the speed of a vehicle, or put the machine into safe mode).

DIS sensors

The smallest absolute multiturn encoder

SCANCON
SCANDINAVIAN CONSTRUCTION COMP. A/S

Today, industrial designs require innovative products with solutions for limited dimensions. In addition, high performance and accurate detections remain a requirement. To meet these requirements, SCANCON has developed a new mini-encoder: the smallest absolute multi-turn encoder with an SSI interface that exists - SCANCON SCA36AN.

This new absolute multi-turn encoder is a solution for motion control, limit switches, automatic doors and small AC motor feedback. The encoder can be used in all kinds of robot and automation applications.

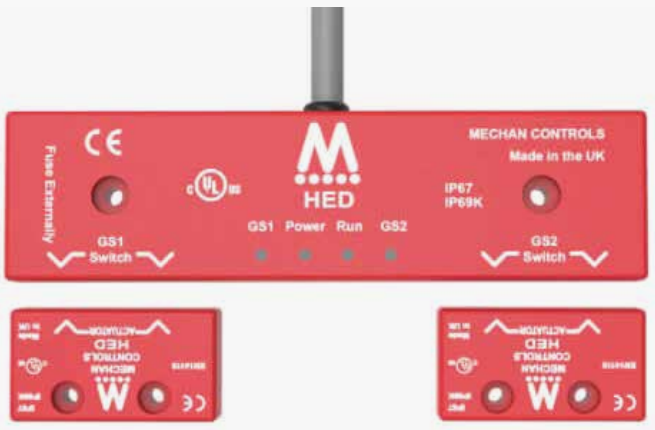
Multiturn encoders are absolute encoders that keep track of the number of revolutions in addition to the position.

Non-contact safety switch for two adjacent doors
HED safety switch

With the Mechan Controls HED safety switch you can monitor two adjacent doors with a single switch and a magnetically coded actuator on each door. This saves installation time, cabling, use of parts and costs.

One HED switch costs half the price of two separate switches. The non-contact actuators can approach the switch from most angles with a switching distance of 7 mm. The safety switch complies with PLe, Category 4 and SIL 3.

Each HED switch has two NC safety contacts. When opening one of the doors, the safety contacts break and the associated auxiliary contact is closed. Both doors must be closed for the machine to work. LEDs indicate the status of the switch. Three positions are available for the cable connection: left, right or center. In addition, an M12 connector version is available.

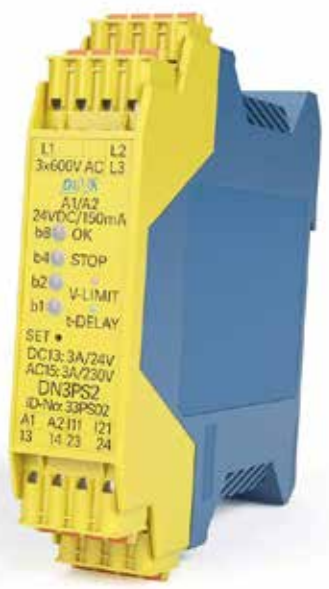


MECHAN CONTROLS

Standstill monitoring
Still a problem on your machine?

A dangerous environment around a machine is usually protected by a gate with an access door. You can also secure the door, ensuring a really safe work area for all human who work in this environment.
Use a standstill monitor to secure a door!

The sensorless standstill and speed monitoring systems work without a measurement system, a unique feature in this compact size module. They safely monitor 1- to 3-phase motors to up to 600V AC at PL e. The standstill monitoring device DN3PS2 by DINA measures the electromagnetic force of a stopping drive. The volt-free outputs toggle when falling below the pre-configured switching threshold. So now you have no need for proximity sensors and even encoders as the 3 phases are terminated directly in to DN3 PS2 monitors the back EMF.



DINA

delivery from stock

Innovative technology in a familiar housing

modular signal tower CT5 - Auer Signal

With more than thirty years of experience in the development of signal equipment, Auer Signal has come up with a new series of modular signal towers. **Auer omitted everything that was superfluous. Auer has optimized everything that is important.** Result? The Modul Compete CT5. For your convenience, the CT5 consists of only 23 article numbers. So you can combine to your heart's content and you keep everything under control.

- **Modular Ø 50 mm signal tower for 24 V DC applications in the industry**
- **Up to 5 positions possible**
- **Low pollution due to flat smooth design on the outside**
- **Multifunctional LED modules and LED modules for continuous light in 6 colors**
- **Efficient sound module up to 95 dB - 8 tones**
- **Optimized "resilient" bayonet system for high stability, even without sealing rings**
- **Five-pole IP65 M12 base with automatic connection by push-in system**
- **All common mounting types**
- **The complete line of the CT5 consists of only 23 order numbers**

LED-modules
The CT5 is based on a unique, patented contact via the printed circuit board and a flat design with no edges, grooves or recess. This ensures that the signals are transmitted safely and that the modules can be produced in a cost-effective manner. Within the CT5 LED modules, the light signals are distributed evenly in all directions.

Meets the requirements of modern industry
The CT5 modules are made from the usual high-quality polycarbonate. The IP65 protection and a temperature range of -30 ° C to + 60 ° C meet all requirements of modern industrial applications.

Available modules
A multifunctional LED module, a LED module for continuous light and a sound module meet all requirements of modern standard industrial applications.

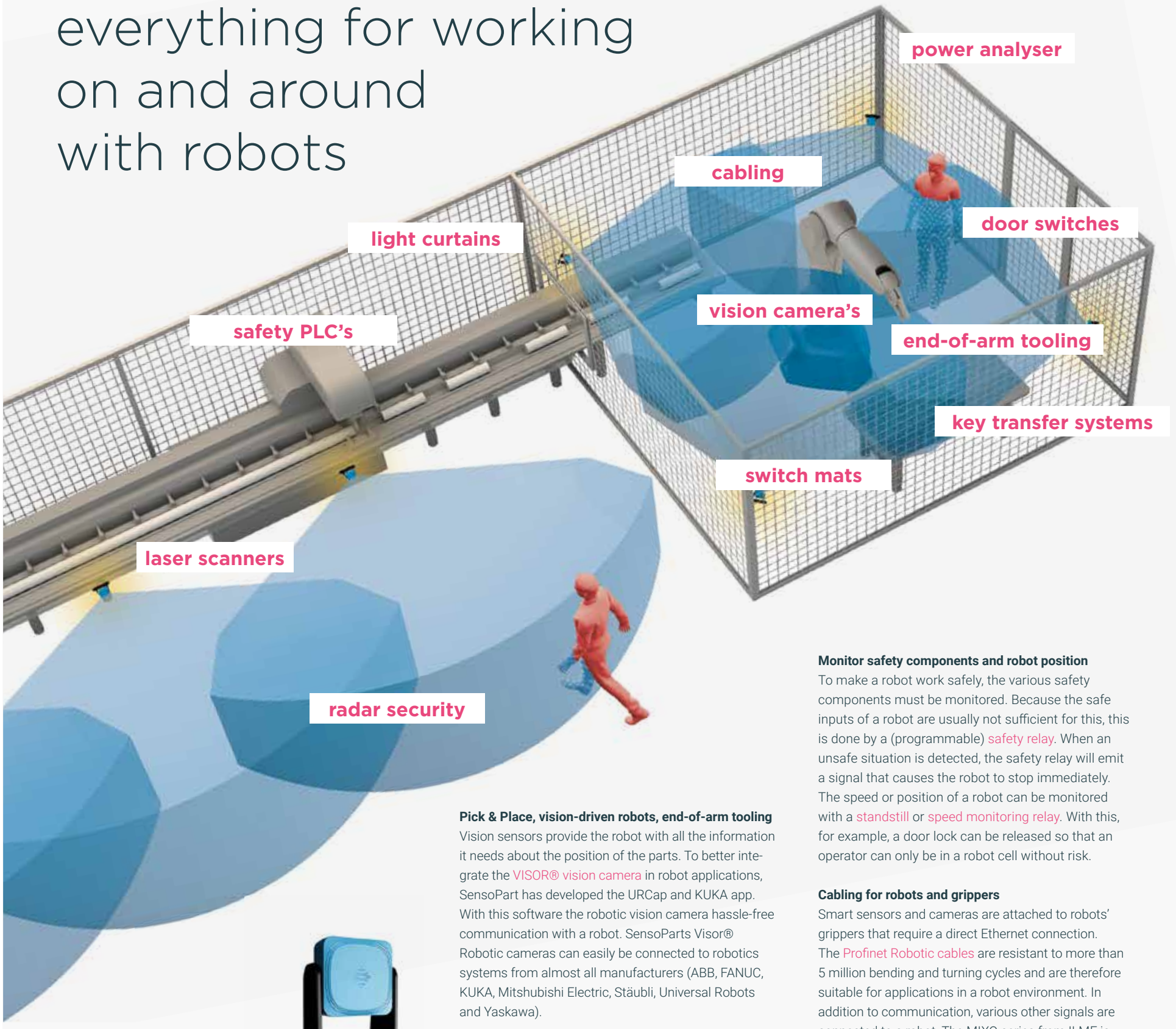
Mounting options
The M12 base can be wired quickly and without errors. A maximum of four modules are possible when using the M12 base. The basic modules of the CT5 have a push-in connection and are suitable for all common mounting types such as: vertical mounting, pipe mounting, external pipe mounting, vertical pipe mounting and pipe mounting with side cable entry.

The PC7, the CT5 or the Eco-Module?
Auer Signal's flagship - the PC7 - is the right choice when a future-proof, powerful signal tower with many flexible options is needed. In contrast to the PC7 and the CT5, the standard Eco-Modul signal tower series is still equipped with classic contact with metal pins, but also offers a complete range of LED and spotlight technology in three sizes.

Auer Signal

The industrial robot stands alone without additional components

everything for working on and around with robots



Radar security system LBK-system

Visor® camera's and sensors

PROFINET Robotic cables

Pick & Place, vision-driven robots, end-of-arm tooling
Vision sensors provide the robot with all the information it needs about the position of the parts. To better integrate the VISOR® vision camera in robot applications, SensoPart has developed the URCap and KUKA app. With this software the robotic vision camera hassle-free communication with a robot. SensoParts Visor® Robotic cameras can easily be connected to robotics systems from almost all manufacturers (ABB, FANUC, KUKA, Mitshubishi Electric, Stäubli, Universal Robots and Yaskawa).

Distance sensors are often used in robot applications. These determine exactly the distance to the object to be grabbed. SensoPart's distance sensors range from the FT 10-RLA - the smallest optical distance sensor in the world - to the FT 55-RLAM, the all-rounder in distance measurement. This ensures reliable distance detection, even with difficult handling tasks with different shapes and positions of parts.

Walk-in protection and restart prevention
The machine must stop automatically when entering a hazardous area. This can be achieved by applying light screens (EOS or Safegate) or a radar security system (LBK system). A major advantage of a radar sensor is that the operation is non-optical. Where dust, water, smoke, vapor, wood chips or moisture normally cause an undesired emergency stop or machine stop, this is not the case with radar sensors. In addition, the system detects operator movement and, like a laser scanner or safety mat, prevents a machine from restarting if an operator is present in a hazardous area of a machine.

Monitor safety components and robot position
To make a robot work safely, the various safety components must be monitored. Because the safe inputs of a robot are usually not sufficient for this, this is done by a (programmable) safety relay. When an unsafe situation is detected, the safety relay will emit a signal that causes the robot to stop immediately. The speed or position of a robot can be monitored with a standstill or speed monitoring relay. With this, for example, a door lock can be released so that an operator can only be in a robot cell without risk.

Cabling for robots and grippers
Smart sensors and cameras are attached to robots' grippers that require a direct Ethernet connection. The Profinet Robotic cables are resistant to more than 5 million bending and turning cycles and are therefore suitable for applications in a robot environment. In addition to communication, various other signals are connected to a robot. The MIXO series from ILME is a modular connector system with more than fifty modules, with which a custom connector can be assembled with the standard ILME housings. There are different modules available: electrical power, data transfer, fiber optics or air. This allows all signals to be connected to the robot with one connector.

Increase the availability of your installation
Welding robots are used in many factories. A clear and comprehensible visualization of the power quality is essential for simple and efficient monitoring of the system. With the power quality analyzers by Janitza you not only prevent machine damage and personal injury but you also increase the availability of your complete installation.

Do you have a passion for technology?

And would you like to work with the best products from A-suppliers?

JOIN US @TEAM FORTOP!

We are always looking for talented people with a heart for technology. Currently we are looking for an **account manager Northern England**.

Do you want to know more about this position? Go to **fortop.co.uk/fortop/vacancies**. Is this a position for you? We would love to hear from you.

Machine safety
delivery from stock

ReeR Safety Guide

Learn more about standards and distance calculation that apply with light screens?

Request the PDF!

fortop.co.uk/request-safety-guide

Find more ReeR products on shop.fortop.co.uk. Register and easily get access to technical specifications, datasheets and prices.