THE ORANGE COLLECTION

Fascination Automation 2024
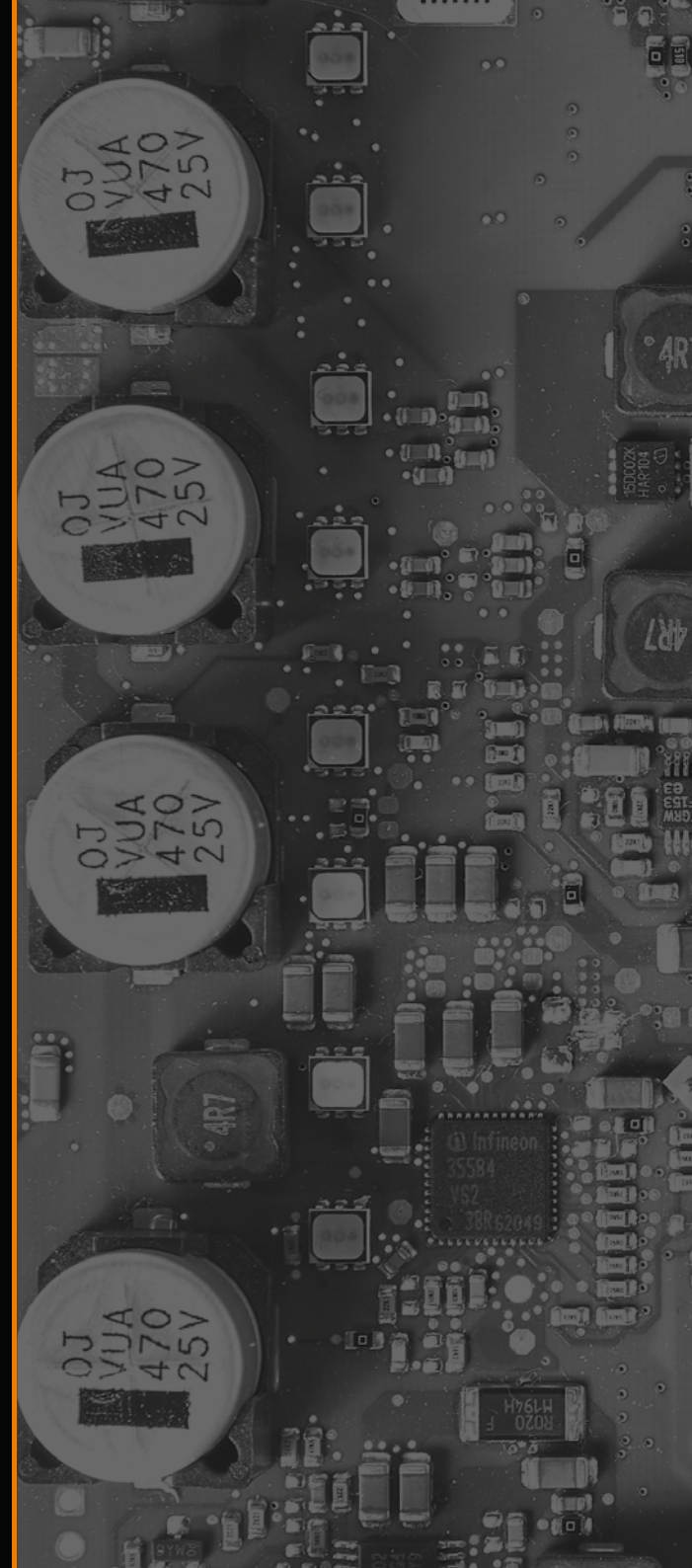
ifm

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The orange way of automation

We believe that good automation is not just a means to an end. It must also be fun, so that something great and valuable will grow out of it. Of course, sensors, connection cables, masters and software are primarily used to operate systems efficiently. And they can do that best if they are of outstanding quality. We have been committed to this aspiration for more than 50 years. But we do not define quality solely in terms of sensing ranges, repeatability, response times or protection classes. Quality means much more to us: our colleagues' passion for automation. The ambition to develop the best possible solution every time. Setting benchmarks.

Inspiring customers. That means countless steps in development. Forwards and backwards. For every innovation, for every evolution. Until finally, all requirements which ifm places on its products are one hundred percent fulfilled: the best functional quality, maximum ease of use and a distinctive design.

Fascination and passion down to the smallest detail: The PCB shown here of the fail-safe sensor for mobile machines, CR720S, is 100 percent "made by ifm" - from development and production to placement.

www.ifm.com

Impulse: yes, you can believe your eyes

Experience automation as you have never experienced it before

Do you remember the intro of this brochure?
When we said:"Automation must be fun"?
When we talked about "our colleagues' passion"
for this topic?

Should you have had any doubts as to whether we really
meant that: What could be more passionate than dedicating
an elaborately produced video format that will appear
regularly from now on to a topic? With "Impulse – the ifm
magazine" we will illuminate industrial automation from
every conceivable perspective. We take a look at details,
at the big picture, at new products and at success stories.

We let images and facts speak for themselves and experts
have their say. In other words: We do everything to inspire,
inform, entertain and infect you with our passion for hard-
ware, software and finding solutions. To begin with, we
took a look at four important topics.

We guarantee that with Impulse, you will experience auto-
mation as you have never experienced it before. Have a look.
You won't regret it!

www.impulse.ifm

It couldn't be any easier!

Improved digitisation thanks to IO-Link

"It's really quite simple!" is easy to say if you know what you're talking about. Usually, as expertise decreases, practical results often increasingly deviate from what one had in mind. Does this also apply to the digitisation of your system? We promise: No! With IO-Link, even potential #unchartedterritory is quickly transformed into a paradise on earth. Because IO-Link is not only simple, but also convenient.

Cable clutter? Not at all!
Take the wiring, for example: Thanks to a standard connector, it is protected against reverse polarity and leads from the sensor to the master, which is located directly in the system. There, the sensor information is bundled and sent to the next higher level system via another cable with a standard connector. This can be the fieldbus, or the IT – or both. Gone are the days of a tangled mess of cables, countless Gordian knots, winding their way from the sensors to the controller, where, according to Murphy's Law, they created at least one false connection.

Automatic parameter setting
What if a new sensor is added? The choice is yours: facing the endless shallows of the cable ducts – or choosing the convenient, easy connection to the IO-Link master. Hours vs. seconds. The old sensor no longer works? With IO-Link, this is no problem, only two simple steps are required: 1. unscrew the old sensor, 2. install the new sensor. Done. The master automatically carries out parameter setting of the new sensor. As we said: IO-Link makes digitisation simple and convenient.

There is so much more than 0 and 1.
We haven't even talked about all the data that the sensors permanently provide you with in digital form. With IO-Link sensors, data doesn't only consist of 0's and 1's, but includes everything that happens between the switch points. Exact pressure curves, temperature curves, flow rates – everything up to date at all times.

And if we tell you that you can even save measurement points with the smart sensors, because not just one, but two or more parameters are measured and transmitted from one sensor: Do you still think negatively about IO-Link?

The game changer

SM Foodmag: a flow sensor that inspires

Can it get any better? At least for us optimists, the answer is a resounding 'Yes, it can'. Even (or especially) in areas where the standard already seems to be set. Let's take ice cream as an example: Is vanilla ice cream no more or less than what it is, vanilla ice cream? Or is there potential for improvement? Can an ice-cream maker stand out from the crowd by re-interpreting their product through innovative approaches, high-quality ingredients and constant exploration in order to take the quality of vanilla ice cream to a whole new level?

We say, yes. We, too, have taken the time to bring the hygienic magnetic-inductive flow sensor to a new level. Time during which we really put the SM Foodmag to the test. Time during which we developed, implemented, reviewed and optimised every single detail. Time during which the SM Foodmag evolved into what it is today. A game changer. Good things take time, they say. Rest assured: This good thing will last.

Nothing but benefits
But what makes the SM Foodmag such a game changer? Well, for starters, we really love the way the operating unit looks and feels. Not to mention the 360° status LED.

Plus, the app-based menu with guided installation lets you set up the sensor faster than a 6-year-old can say "I'll have three scoops of vanilla in a cone, please". Another striking feature of the SM Foodmag is its rugged construction that will bring any vibrating plate to its limits: solid through and through. The display remains where it belongs. It will melt you away.

Did we mention IO-Link?
Speaking of melting. The sensor detects liquid and creamy substances with high precision and transmits information on the current flow rate, flow direction, total quantity, conductivity and fluid temperature to the controller and - thanks to IO-Link - also to the IT level. Yes, you read that right! The gap in digitalised food production is closed once and for all! It is that easy. The first thing to mention is the standardised M12 connector. Take our cable and connect everything in seconds, water-proof and error-free. What's more, SM Foodmag has industry-typical installation dimensions and fits easily into existing systems without having to compromise.

Dare to try something new
No matter how you look at it: There's plenty to love about the SM Foodmag and nothing to complain about. Try it out. You may get hooked.

Modern, efficient, transparent: bottling plant 4.0

ifm has supported Refresco and Tetra Pak in a digitalisation project

Refresco Group is the leading soft drinks bottler in Europe. As co-packer, the company fills non-alcoholic beverages from numerous well-known brand manufacturers in bottles and carton packs. In France alone, the company operates four bottling plants, including one at the Le Quesnoy site. In order to meet the growing demand for both types of containers even more efficiently, Refresco decided to build a new factory in the north of France with a capacity to fill up to 30,000 PET bottles and 8,000 cartons per hour.

Digitalisation project accompanied from the outset
"It was clear to us from the very beginning that we wanted a new building that was state of the art and, above all, that we also wanted to benefit from the advantages of digitalisation," says Joseph Kerdo, project manager at Refresco France and responsible for planning the new plant.
To realise the networked factory, the company worked closely with ifm as their digitalisation partner, and also with Tetra Pak, who were responsible for constructing the filling lines.

"ifm supported us in the project from the very beginning, proposing the right solutions and answering all our questions," explains Grégory Croizier, Automation Team Leader at Tetra Pak.

"For us, AS-i offers the advantage of simple, well-prepared planning and an equally trouble-free implementation."

ifm.com/cnt/refresco

"ifm supported us in the project from the very beginning, proposing the right solutions and answering all our questions."

AS-i and IO-Link for digital data transmission
An infrastructure of IO-Link and AS-Interface was designed for reliable digital data exchange. The advantage of IO-Link over analogue wiring is the decentralised bundling of sensor information via IO-Link masters installed in the field, to which the sensors are connected via unscreened, standardised 5-pole cables. This simplifies wiring and reduces the error potential in the sensor connection. Since data transmission is digital only, measurement data is not distorted by conversion processes. EMC effects, too, cannot affect the information.

"IO-Link and AS-i greatly simplify data architecture," confirms Grégory Croizier. "The data is consistently available and the customer benefits from easy, reliable maintenance because the diagnostic options are much better than before. Another advantage is that components can be easily replaced without having to be reprogrammed."

Simple, flexible, versatile
AS-i is used to connect the valves and for the process level. Grégory Croizier explains the reasons: "For us, AS-i offers the advantage of simple, well-prepared planning and an equally trouble-free implementation."
AS-i shows its advantages especially when widely distributed data points are connected. Only a two-wire flat cable is required for data transmission and power supply to the connected sensors.

The cable length can be up to 1,000 metres when using standard cables and repeaters. Longer distances of up to 3,000 metres can also be bridged using fibre optic cables. Sensors and masters can be connected to the AS-i cable flexibly and precisely at any point using the insulation displacement technology.
Another advantage: AS-i can be combined with IO-Link – as has been the case in the Refresco project. The decentralised sensors on the individual plant components are bundled via AS-i-compatible IO-Link masters and then transmitted to the PLC and the IT level via the AS-i infrastructure. Even safety-related applications, such as the monitoring of manho-les, can be implemented using AS-i thanks to the safety portfolio.

Conclusion
Given the flexible possibilities and easy handling of IO-Link and AS-Interface, Tetra Pak was able to plan and imple-ment the bottling plant digitalisation for the Refresco Blue-bird project quickly and easily. Refresco itself also enjoys various benefits: more accurate sensor information, better diagnostic options and easy maintenance.

ifm.com/cnt/refresco

Precise temperature control

Field-ready IO-Link temperature module for four measuring elements

It's no different in the kitchen than in industry: nothing works without the right temperature. Only those who know how to control the temperature can achieve the best quality and prevent steaks from becoming dry and rubbery, or expensive machines from overheating and breaking down. While it is normal for private cuisine hobby chefs to rely on the support of digital thermometers, analogue guesswork is still the order of the day in many areas in the industry. Until now.

For everything that is was analogue
With the IO-Link temperature module, you can catapult traditional temperature monitoring into the digital age. Whether PT100, PT1000 or thermocouplers. Whether 2-wire, 3-wire or 4-wire, with an M12 connector you can connect what is installed - and the measured data is available not only in the control system, but also at IT level for continuous monitoring. Injection moulding systems, motors, pumps - you name it. In this way, you can connect 32 temperature measuring elements to an 8-port IO-Link master. Directly in the field, of course. Just like their big master brothers, the modules are IP67 and IP69K rated to withstand the most adverse environmental conditions. A welcome side effect: decentralised data collection reduces the number of miles of cable and speeds up troubleshooting in an emergency.

Accuracy? Always to perfection!
The data quality you get with digitalisation deserves at least one Michelin star. With an accuracy of +- 0.3 per cent, the sensors digitally transmit the degrees without any loss of resolution down to a hundredth of a degree. What about the effect of cable and contact materials on readings? You can wipe these off the table with just a few clicks in the "cold junction offset" and "temperature zero point calibration" functions.

Are you ready for digital temperature detection?
It's all set!

ifm.com/cnt/pt-module

Digitalised recycling

EREMA, manufacturer of recycling systems, relies on hardware and vibration expertise from ifm

Drinking bottles, food packaging, bags, toys: many things in everyday life are made of plastic - but we only need some of them for more than a few hours or days. Around 400 million tonnes of plastic are produced worldwide every year. Only a small share of this is recycled and thus reused. Among the players that keep the plastics cycle going and successfully complete it, are the Austrian EREMA Group and PET-Verpackungen GmbH from Germany.

The EREMA Group is committed to giving plastics a new life. To this end, EREMA develops and produces plastics recycling systems and the associated solutions and services.

The approximately 7,500 active plants worldwide have the capacity to produce more than 20 million tonnes of recycled granulate. "To produce the granulate, the plastic is delivered to the operators of our systems in the form of flakes that are already shredded, clean and sorted," says Florian Schieder, R&D Management &IPR at EREMA Engineering Maschinen und Anlagen GmbH.

"The flakes are then dehumidified, compacted, melted, filtered and then granulated in our plants. The granulate produced is the basis for reusing the recycled material to manufacture new plastic products."

If food-grade granulate is to be produced, as is the case at PET-Verpackungen GmbH, for example, the flakes are shredded at a higher temperature and under vacuum. "On the one hand, this ensures that the material is decontaminated, and on the other hand, this special treatment enables us to achieve better colour properties for both the granulate and the end product," Florian Schieder continues.

ifm.com/cnt/erema

Up to 80 vibration sensors per system

EREMA relies on sensor technology and IO-Link masters from ifm to control the manufacturing process. "We have been using pressure sensors, photoelectric distance sensors and flow sensors for a long time to ensure that all relevant process values are adhered to and that the material flow takes place at the required speed," says Yvonne Kappacher-Winter, Development Project Manager PredictOn at EREMA Engineering Maschinen und Anlagen GmbH.

"We are now digitalising our systems even further by equipping motors, gears, vacuum pumps and roots compressors with a total of up to 80 vibration sensors and other oil condition sensors. This enables us to precisely record the system's maintenance requirements. The customer can see information on the health status of the system via our PredictOn predictive maintenance system both directly on the system and via our BluPort customer portal. This enables early damage prediction and the planning of appropriate maintenance measures to minimise downtimes," says Yvonne Kappacher-Winter.

Digitalisation: everything from a single source

Florian Schieder adds, "We have customers who operate their systems around the clock and produce up to six tonnes of granulate per hour. The long-term availability of our machines is becoming increasingly important for us and our customers. It was clear to us that we needed more sensor technology and further digitalisation in order to be able to detect and avert impending failures at an early stage. We needed a strong partner who could support us with the right products and expertise in vibration analysis. At ifm, we receive everything from a single source, from the sensor to the evaluation electronics, IO-Link master and gateway. This makes it easy for us to offer the customer a seamless solution. They can see the processed data on their laptop and smartphone at any time and take appropriate action, including ordering spare parts from us."

Containers made from 100 per cent recycled material
PET-Verpackungen GmbH also appreciates precisely these possibilities of data-based maintenance planning. As part of the Wiegand Glas Group, the company primarily produces PET preforms for the beverage industry, but also moulded PET containers with a capacity of 10 millilitres up to 30 litres. "The topic of recycling is becoming more and more important for us. Our customers are increasingly asking for products made from recycled materials. In some cases, the proportion is 100 per cent," says Matthias Raab, Operations Manager at PET Packaging.

"That is why we decided to commission our own recycling plant three years ago and chose EREMA as our technology partner." PET-Verpackungen produces up to 50 tonnes of granulate every day for further processing."In order to maintain the production process, it is important that all systems and processes function reliably. The digitalisation solution from EREMA supports us enormously here, as the condition monitoring and planning of maintenance is considerably simplified by the data provided," says Raab.

"At ifm, we receive everything from a single source, from the sensor to the evaluation electronics, IO-Link master and gateway."

Conclusion
With integrated solutions for digitalised, comprehensive system monitoring, ifm helps EREMA to offer its customers added value in the plastics recycling process. Thanks to condition-based maintenance, system availability is increased and the recycling potential is maximised.

ifm.com/cnt/erema

This cube works almost like magic

PQ Cube: Adding the perfect twist to your pneumatic system

Still popular to this day, the Rubik's Cube continues to captivate its users - either bringing a big smile to their face when all six sides suddenly display a single colour, or leaving them puzzled and frustrated after hours of twisting and turning with no end in sight.

A breeze to install
The PQ Cube is much more generous, evoking nothing but smiles. And yes, our magic cube eliminates all the guesswork, helping you reach the perfect result in no time. Installing PQ Cube is simple and quick - just like the final twist of a Rubik's Cube. Adapters are not required in most cases. Everything will click into place as if by magic.

Pure clarity
Once connected, you will get to know the clarity of the cube. A nine-language wizard makes parameter setting seem like child's play, while a razor-sharp 1-inch display ensures convenient pressure monitoring.

Used on agile vacuum grippers, a full colour change of the display lets you know even at full speed whether everything is going according to plan (green) or whether the grip strength is outside the target range (red).

Extremely robust
Speaking of full speed: Any dirt or dust particles racing through the air or vacuum lines will bounce off the highly precise and robust measuring cell without having any effect on the PQ Cube. In fact, the PQ Cube is tough on the inside and out, featuring a highly durable IP 65 housing with brass sockets.

Hence, our cube will never leave you puzzled and frustrated. We truly believe that you will be nothing but delighted.

Unlimited freedom!

Bluetooth mesh: IIoT retrofit, simply wireless

Communication is so easy these days. Just take a look at the variety of social networks that make it possible (and easier) for us to get in touch with others, to exchange ideas, even on a professional level. Once you have registered on a platform, you will quickly find existing and new contacts with whom you can share information up and down then. Anytime. Anyplace. Wireless. Thanks to technological progress, the internet, mobile telephony.

Digitalisation via a tedious detour?
The actual added value of this maximum freedom and limitless flexibility people have gained through the new forms and means of communication becomes particularly obvious when we turn to a different kind of "business networks": the local infrastructures of the Industrial Internet of Things. Looking at this, so to speak, machine counterpart of business-related information exchange, we notice that, basically, plant operators have been dependent on cable communication up to now. In the case of new plants, which are directly planned and devised for digitalisation, this is perfectly fine and sensible. However, for a subsequent integration of systems into IIoT, this approach is not particularly useful.
Because if, for one sensor, an additional set of IIoT wires has to be squeezed through already tight cable ducts,

if the three-metre linear distance to the next data node has to be overcome with a 25-metre diversion across the factory hall ceiling for lack of alternatives, you would probably go ahead with it. But for 20, 30, 40 sensors? In this case, surely, IIoT would have to wait after all...

Eureka!
...that is, for the solution we have on offer. With our Bluetooth mesh system, all you need for an IIoT retrofit in the future is IO-Link sensors, the Bluetooth mesh system and our free app. Additional cables? Negative! The system itself consists of a base station, creating the connection to the IIoT, and up to 50 Bluetooth adapters, which are screwed directly onto the sensors and integrated into the base's network via the app.

They all talk to each other
Once in the network, the adapters ensure an active exchange not only with the base station, but also with each other: in addition to the data from your sensor, also the data from the adapters located within the radio range are forwarded to the base. The result is a lively mesh communication where all talk to each other and exchange information – with the aim of transporting any information as quickly as possible towards the base and thus towards the IIoT.

In this way, you can connect any system, no matter how extensive or remote, to the IIoT in no time at all. Without much effort, without extra cable sections, without pulling, pushing and tugging in cable ducts. A screw connection and subsequent integration, that's all it takes.

Retrofitting can be so simple.

ifm.com/cnt/bluetoothmesh

Sleep tight, process experts!

LDL conductivity sensors: perfect water and product quality at all times

Cherry yoghurt with a raspberry flavour? Limescale deposits in the ultrapure water circuit? Wrong NaCl concentration in the fish breeding tank? If you are plagued and awoken night after night by such nightmares, don't worry: Help is at hand! The products of our LDL family put an end to sleepless nights, restless tossing and turning and bolting up from your bed in the early hours.

The right remedy for every diagnosis

Do you want to ensure that your ultrapure water is as pure as it can be (and when we say ultrapure, we mean 0.055 µS/cm), at all times, without the usual hassle and stress? If so, the LDL101 is the ideal choice. A top tip if you are looking for a hassle-free and convenient as well as efficient and effective way of carrying out hygienic CIP processes is the LDL2xx. It checks conductivities from 100 to 1,000,000 µS/cm. For environments unsuitable for stainless steel (e.g. in fish farming or shipping applications), opt for its polypropylene counterpart, the LDL400. Its measuring range extends to 2,000,000 µS/cm, and it also provides information on the salt concentration in ultrapure water. Last but not least, the LDL100 is easy on your nerves when it comes to simple phase separation.

Reassuring reliability 24/7

So whatever you need to relax and find your inner peace: We can provide it. Whichever one you choose, our LDLs are just the tonic for a good night's sleep. Your quality assurance. Your comfort zone. Around the clock. Also during the night.

So much less, so much more

And please don't be irritated by their dimensions, which are almost homeopathic compared to similar products from the competition. Our LDLs are reduced to the bare minimum to guarantee the best results in the long term: no protruding structures, a standard M12 connector, high-quality materials and even more IO-Link convenience. Compact dimensions, low weight, robust design and maximum performance: This is the recipe for success in modern conductivity measurement, efficient quality assurance and effective sleep promotion.

Here's wishing you the best rest you've ever had! Without any risks or side effects.

ifm.com/cnt/ldl400

Fascinating!

The ecomatDisplays: hardware and software as if from another galaxy

Mobile work machine, aircraft, star cruiser? Compared with the options and information equally available in the cockpit of the pilot, whether near-ground or sky-bound, the borders certainly seem more fluid today. Anyone with access to a central, universally ingenious inter-action element can count themselves lucky. Elsewhere, prior to every take-off, check-list encyclopaedias had to be worked through or, in the case of engine problems, the pilot had to wait idly on Scotty's assessment.

Now also available in 4.3 inches!

So it's good to have an ecomatDisplay at your side in your on-road or off-road machine. They really are true masters of their trade. Black belt in multicommunication. On 4,3 to 12 inches of die-cast aluminium, well-packaged in IP65/67, they show or tell the machine operator what is currently happening in, on or around the machine: speed, temperature, up to eight camera images, up to 16 million colours, warnings, maintenance videos, diagnostic documents. And many other things.

At the same time, the display is also the command centre from which the individual actions of the machine are initiated: extend the supports, eject the seed, retract the ladder…

Everything the machine operator's heart desires.

A heart for developers

If you get the impression we are raising your expectations too high, we offer our hand to the developer: Because we do not promise anything that can't be initially set up in the software environment with just a few clicks. Some might like hard coding, but you don't necessarily have to use it with such displays. Video embedding, camera integration, display layouts: Everything is readily available as a basic building block and can be added to the project with a few clicks. Really: everything a developer's heart desires.

Energy!

And just as the spaceship jets smoothly through space and time towards its destination thanks to warp drive, the developer sprints at maximum speed through infinite expanses and possibilities towards project completion – thanks to ifm's ingenuity. Even the most unemotional space species raises an eyebrow in appreciation.

The ecomatDisplays: Fascinating!

Robots, unite your senses!

The new O3R camera and sensor platform

Spatial orientation, the ability to navigate from A to B without accidents: Thanks to the senses of sight and touch, this is usually an easy task for people. The eyes send visual information to the human computing centre while hands (or feet and shins) contribute haptic and tactile data. All this is evaluated in microseconds, deriving instructions for the locomotor system ("lift foot from plug-in module", "pull shin back from metal support", "clench teeth"). The main reason this works so well is that all the information flows to a central location. without time-consuming pre-processing, without dangerous latencies. Ideally, all sensory information is available to the brain at the same time. The result: quick response times.

Preventing over stimulation of the controller
For the AGV with the O3R platform, the situation is quite similar: As the central sensory system of the robot, the computing unit processes the incoming visual (cameras) and tactile (lidar, sonar, radar) data and passes it on in the form of bundled synchronised information to the executing control centre (controller). The control centre in turn – relieved of complex processing of the incoming flood of stimuli – can then issue quick instructions to the locomotor system without latency, similar to humans. In this way, accidents can be avoided by emergency stop while target objects or positions can be approached with precision. The AGV is thus able to navigate from A to B efficiently and without accidents.

In other words: The O3R platform takes navigation of mobile autonomous robots to a new level. Maybe not yet on a par with humans, but certainly extremely intelligent.

www.o3r.ifm

A clear advantage for those who let others read

O2I: the multicode reader that can also read text

"Could you please check that these modules are all of type RXC74-8853989658? Not that one of the RXC74-8853898568 type has slipped in by mistake. They look the same, but only fit the other model…" This is where the fun begins, and you might as well give up and go home. Unless, of course, you ask our O2I multicode reader to help you with this small and perhaps slightly exaggerated application example.

In the blink of an eye, it captures not only QR and barcodes, but also lines of text in its field of vision, evaluates them and gives feedback on whether what it has read matches what was specified.

Light and location: no matter
The position in which the printed, lasered or die-cut messages pass in front of the lens makes no difference to the sensor. If it is too dark or too light, the O2I automatically adjusts by simply selecting the ideal image from five differently exposed images.

Identifying, checking, optimising
What can you do with the capabilities of the O2I? You can reliably register individual components, as in the example above, and ensure that the correct parts have been delivered and allocated to the correct process.
You can monitor stock levels and avoid impending stock-outs by reordering as needed.
You can reliably determine the quality of process elements by reading out batch numbers, expiry dates or production times. You can also check whether the required information has been correctly and legibly applied to your products.

To read or not to read?
In short, you can make your intralogistics movements more transparent, safer and faster. You can ensure the quality of your end products. Or both. As you can see, there is no shortage of tasks and possible applications for the O2I. And if we haven't convinced you yet: remember us the next time you are asked to join the fun of comparing type numbers in the dim light of your reading lamp.

Lighthouse in the fog of noise

Light towers: Recognise and assign the status in a flash

300 000 000 meters per second. In terms of speed, light is unsurpassed. This has been common knowledge ever since Einstein stated it. But the ancient Egyptians also realised that light can travel great distances and made use of this knowledge roughly 2500 years ago. Pharos, reputedly the first lighthouse in the world, guided ships within a radius of 56 kilometres safely into the port of Alexandria.

The clear language of light

To this day, mankind has relied on light as a signalling element: Traffic lights, position lights, indicators, to name but a few. And: Light towers. What do all these modern light beacons have in common? They send out a clear message, day and night, easily recognisable from near and far and, as a visible signal, their purpose can be identified and assigned more quickly than their invisible colleague sound.

Acoustically impenetrable cacophony

Take a busy machine workshop as an example. It's a hive of activity and noise. Every machine hums, whirs, buzzes and rattles away. A joyful but utterly deafening confirmation of performance. Question: How can an individual machine attract attention in the midst of this fog of noise? When it runs out of components, for example. If the oil pressure drops or other trouble looms? Should it groan, play a tune or shout out loud? Just another sound among many. And what if someone actually does manage to hear it? It then takes forever to identify the source amidst all the noise. Try finding your friends at a music festival by simply shouting out their names…

Search less, act faster.

So it's better to build a lighthouse. A flashing red light does not go unrecognised even in the strongest sunlight. And even if 20 plants communicate their condition: The single light source is still clearly visible and action can be taken quickly in the event of an emergency. You need to spend less time searching, which allows you to act faster.

And those who receive clear information at the speed of light can act more purposefully. For this reason, our light beacon can also make otherwise hidden or poorly visible values visible to production staff: Levels, production cycles, temperature windows …
Whatever you want to display visually: Do it! Use the clear and rapid language of light to your advantage.

It's time to lift the fog and see the light.

ifm.com/cnt/signallight

Perfect bagging process

Lenne workshop relies on the ifm mate worker assistance system

Sozialwerk St. Georg e. V., based in Gelsenkirchen, Germany, is a decentralised social service organisation that operates around 100 locations throughout North Rhine-Westphalia. It also includes the Lenne workshop in Schmallenberg where around 320 people with disabilities are employed.

The fields of activity in which the Lenne-Werkstatt offers work to people with disabilities are diverse. They include carpentry, electrical assembly or metalworking. In addition, there are office services, document shredding and packaging activities.

"We work together with many companies from the region that operate in different sectors and also globally," describes Benedikt Hanses, production manager at the Lenne-Werkstatt.

"Most production orders are quite extensive while the requirements to implement them properly are high because if the manufactured or packaged end products are faulty or incomplete, our customers will have to deal with costly complaints. Of course, we have to and want to avoid that," says Hanses.

Efficient order implementation is becoming increasingly necessary

It is, however, not only the expectation of reliable quality that is continuously increasing: "The set time frame sometimes requires a high level of efficiency on our part to complete the orders on time."

For Benedikt Hanses, this is the best reason to provide people with disabilities who are employed here with the appropriate tools or even to develop them in-house, especially in the case of permanent or extensive packaging or assembly orders. "These tools enable our workers to successfully implement the task. This increases motivation and reduces frustration. At the same time, this assures our quality."

"We chose ifm mate especially because of its ease of use and reduced technology."

Any packaging error could lead to a standstill
100 per cent assured quality is also required as part of an order for an internationally active manufacturer of machinery for underground pipe laying.

"We are contracted by the company to pack sliding bushings and O-rings of various designs in pressure seal bags. They are needed as spare parts for the drilling machines. Accordingly, the aim here is to achieve a failure rate of 0 because every missing part can lead to an expensive machine standstill," says Hanses. Depending on the machine, such a bag may contain up to 18 different spare parts.

Dramatic reduction of the redundancy of inspection effort
"So far, we have implemented 100 per cent batch security through a threefold control system. First, the client packed the required items and checked the product. Afterwards, both the group leader and I manually checked the batch to make sure it was free of defects." An immense amount of work that has now been automated and considerably reduced by the ifm mate worker assistance system.

ifm mate - easy-to-handle worker assistance system
The automation specialist ifm originally developed the worker assistance system out of its own needs to support its employees at manual assembly and packaging workstations - both in the daily routine and in the training process for new employees or new work processes. The aim was to keep the system easily manageable without sacrificing performance.

mate is available as a complete solution and its heart is a 2D/3D camera and a box PC with powerful pre-installed software. It detects the exact position, height and orientation of the human hand using artificial intelligence and visually guides the worker at the workstation through the process via a display. Unlike other existing solutions on the market, mate does not require any additional accessories such as tracking wristbands and is easy to set up for any manual activity.

"We chose ifm mate especially because of its ease of use and reduced technology", says Hanses.

By tapping the touch screen, for example, the positions of the containers with the individual components can be taught; depending on requirements, it is then possible to specify whether the individual steps are to be processed in a predefined or free sequence. A combination of both options is also possible.

"Accordingly, the aim here is to achieve a
       failure rate of 0 because every missing part
can lead to an expensive machine standstill"

The customer is glad about the quality improvement
"The most important argument for us, however, was that we can achieve 100 per cent order processing with efficient time expenditure. Because the software reliably prevents omitted or faulty packaging steps already in the process, redundant testing has become completely unnecessary," says Hanses, who can now use the time gained more productively.

The increased quality of the deliveries has also already been positively noticed by the commissioning machine manufacturer.

"Even now, any queries that may arise can be resolved quickly and without complications. System and service have completely convinced us in this case"

Conclusion
The Lenne workshop convinces its customers with reliable and timely order processing. It is open to effective aids that help to support the various manual activities.

With its ifm mate worker assistance system, the auto-mation specialist was able to offer the company such a tool. The result: error and complaint free order processing with significantly reduced monitoring effort.

Convinced by the system - and the service
"Certainly, such a worker assistance system stands and falls with the acceptance of those who have to deal with it in everyday life," says Hanses. "There is a great demand among our employees to work with mate.
And our employees who assist the workers at the workplace are also more than convinced of the added value - not least

because of the ease of use. ifm itself has also contributed to this. We received fantastic support at all times from the first contact up to the setup and familiarisation phase at our company.
Even now, any queries that may arise can be resolved quickly and without complications. System and service have completely convinced us in this case."

▶ **ifm.com/cnt/lewe**

100 percent hand, mate!

Manual production: on-the-job-training has never been easier!

"It's quite simple: Place the spring from compartment C in the sleeve from compartment A. Hold both together to insert the refill from compartment B and twist on the end piece from compartment D. But don't forget to insert the centre ring from compartment E first... oh! Well, you'll have to do it again. Good luck!"

Exaggerated, you say? We agree! But we have probably all taken a ballpoint pen apart and reassembled it many times – unlike other, much more complex products that still require manual labour. Until such a production process is really mastered and becomes routine, it has to be carried out many times. It's good to have a calm, helpful colleague at your side – or a buddy who tirelessly gives you a helping hand: a real mate.

ifm mate guides you through the manufacturing process

Manually assembling changing products. Packing changing products together with changing package inserts and changing accessories in the correct packaging. These tasks and everything else that has to be combined, grabbed or connected with dexterity and concentration is guaranteed to succeed 100 percent as intended with ifm mate. The worker assistance system supports the employee by displaying each process step on a monitor and, if required, demonstrating the necessary action in a video.

Those who want to be doubly sure can also have assembled workpieces cross-checked by the 2D vision sensor Dualis. Find out online how exactly and how easily this works. The Dualis itself is presented in more detail on the next page.

Easy to master

Thanks to its AI-based algorithm, ifm mate uses a camera image to reliably identify the human hand as well as other objects such as lighting systems. The employee doesn't have to wear wristbands or gloves so that the system can recognise whether, for example, the correct components have been gripped for the upcoming work step.

All this is easily solved by ifm mate. The handling of the system is just as easy. The employee simply selects the manual process, of which any number can be stored, that he wants to carry out. It is also very easy to create new processes. Working with ifm mate is basically fun before it even starts.

ifm mate – a great help to everyone

For whom ifm mate is a help? For new employees, who quickly gain on-the-job confidence even in complicated manual processes. For trained staff who can still provide tips and assistance, but no longer need to do so to the same extent. For companies, because process quality increases – as does customer satisfaction.

www.mate.ifm

Utilise the full power of your data

moneo: the IIoT platform for those who care about their plants

My pulse frequency is 45 per minute when I'm asleep and healthy. If I am ill, it is about 55. Under full exertion, my heart pumps more than three times per second. I run my home course of ten kilometres in less than 50 minutes on a good day and at a temperature of about 20°C.
How do I know all that?
The fitness tracker on my wrist collects my body data and my performances on a daily basis and analyses them for me. It helps me understand my body system. I can tell at a glance whether my body can cope with the exertion or whether I'm in the red zone and overexerting.

The sensors on my wrist make my complex human organism transparent to me. While such a thing may have been difficult to imagine in the past, it is hardly anything special for us today. Take a glance at your wrist to check how your body is doing. Just like that.

moneo: the result of a deep understanding of the machine
Monitoring the status and current condition of your machines and plants is very simple. With moneo. For more than half a century, we have had our finger on the pulse of the industry, shaping the evolution of automation.

We are now distilling this expertise and in-depth understanding of all kinds of machines and plants from the OT level and combine it with the inexhaustible possibilities of digitalisation.

Thanks to our IIoT platform, you can check the condition of your plant at any time. It will show you whether everything is running in the green zone or whether performance is declining, consumption values are getting out of hand or maintenance is required.

Data becomes information. Information becomes value.
Your plant already offers the preconditions for it: sensors permanently provide data on temperature, pressure, level and object presence. In most cases, however, this data only reaches the controller. And this only accounts for about 5 per cent of the wealth of knowledge that is available.

Thanks to moneo, you can easily benefit from the remaining 95 per cent. Like a fitness tracker, our IIoT platform collects the incoming data, evaluates it and generates information you can use to optimise your processes and workflows and to optimise maintenance schedules.

▶ **www.moneo.ifm**

Never again in the red

Temperature curves, compressed air consumption, cycle times, operating hours, levels, vibration behaviour – whatever may have an influence on the **performance**, **production quality** and **energy efficiency** of your industrial organism, with moneo, you will be able to act before your investments will run out of steam and before wear, lacking supplies or defects will lead to downtime or before precious energy will escape ineffectively through leaks. That is real added value. It saves money, nerves and time. You can, for example, rather invest the time you save after work to improve your best time on your 10-kilometre home run.

Do you want to understand your machines and plants better and keep them fit? Are you ready for more information, performance and efficiency?

Then start now. With moneo.

Connect data from plant floor

Transform data into information

Get actionable insights

This is how it goes: the flawless ifm data avenue

Digitalisation with ifm? For a good reason.
Simple. Seamless. These are the words that best describe the data journey if digitalisation is understood and approached as an overall solution. From the sensor on the plant to the data infrastructure and the software solution at the IT level, we provide you with all components from a single source.

And thanks to our cloud solution, you don't need to worry about additional human and machine resources. Computing power, software maintenance – we offer you all that on top. So, you can be sure that all information will follow the intended path and will be available to you at any time and in any place in a central location to optimise your processes.

IT level
Software like the IIoT platform moneo processes the incoming data into value adding information that helps users to optimise their processes like internal and external supply chains or their maintenance management.

Middleware
IO-Link masters, diagnostic electronics or edge devices collect and process data and transmit it to wherever the data can be further processed. This can be the PLC and, at the same time, the IT infrastructure with ERP systems, data storage or the cloud.

OT level
Sensors measure values such as pressure, temperature, vibration or flow rate. Modern sensors with IO-Link can also provide more than one value and transmit additional information such as machine uptime or the number of process cycles.

Turning the dream of clockwork into reality

How the IIoT can help you achieve a perfectly synchronised supply chain

Reference 57260, Aeternitas Mega 4, Calibre 89. If this name gets you excited, then you are definitely someone who is fascinated by the art of watchmaking. And that is totally understandable. It really is incredible to see how countless complications – as a horologist calls the different functions of a watch – can be implemented in such a small space. It's all down to precise interaction of cogs, springs, levers and shafts. Of course, a work of art like this doesn't come about overnight. It took around eight years for the 2,826 components of the Reference 57260 to be conceived, developed, produced and assembled, resulting in no less than 31 hands that provide 57 different functions. Sorry, we mean complications.

Complicated? It doesn't have to be that way.
The issue of time (and unfortunately sometimes also the issue of complications) plays a crucial role in supply chain management. Every unused or wasted unit of time costs money. Efficiency is to a supply chain manager what perfection is to a watchmaker. And they are essentially one and the same thing. To achieve maximum efficiency, all the units involved need to engage perfectly with one another, like clockwork, at all times. That is the only way to deliver the best possible results across all functions – ideally without any complications getting in the way. It sounds complicated but it's not really. At least not if you look for experienced supply chain specialists to perform the task, just like a watchmaker. They have perfected the craft of composing and synchronising all the cogs in the supply chain over many decades.

The first bit of good news is that you've already found these experts. The second bit of good news is that our seamless combination of sensors and software can turn your dream of perfectly clean, well-oiled and pleasantly whirring clockwork into a reality much more quickly than the example we talked about earlier.

Bringing two worlds together: GIB SCX meets Industry 4.0
How does it work? Very easy: We bring the production and IT levels closer together, ideally using existing frameworks. No matter whether we are talking about machine maintenance requirements, production capacity or intralogistic material flows: in Industry 4.0 they are all recorded using sensors, forwarded to the IT level and converted into readable information, for example using the moneo IIoT software. Our native"Shop Floor Integration" interface sends the information to SAP in real time. There, thanks to our"GIB SCX" supply chain solution, which also has native SAP integration and certification, all of the operational and strategic units involved access the exact same standardised data. This creates transparency and ensures that all subprocesses are perfectly synchronised. This means that everyone from purchasing to shipping can respond very quickly to even unscheduled maintenance requirements or spur-of-the-moment large orders. Everything is integrated and coordinated.

One cog engages with the other. Complex operations that were previously carried out manually run automatically in the background. Like the delicate work of art behind a clock face. An onlooker only sees the information displayed. But they know that the clockwork is running.

Precisely, cleanly and reliably. We turn the dream into a reality.

Because safety should be more than just a feeling

ifm safety service: all-round protection for every plant

No industry, no manufacturing sector can do without the support of machines and systems in production today. From the beginning of industrialisation up to today, the means of production have developed considerably in terms of performance. Precision, power and speed are elementary factors today – and where there are interactions with people, this is also the case for safety. Wherever man and machine work together, whether for or next to each other, the risk of worker injury must be reduced to a minimum.

To ensure this, plant manufacturers are required to consider safety already at the design and construction stage. Plant operators have a duty to guarantee sustainable effectiveness of the selected protective devices.

It is not always easy to keep an eye on current regulations, to assess the hazard correctly from the inside, or have the according expertise ready and waiting for holistic, standard-compliant, safety-oriented system designs. This is where ifm safety service comes into play. We support plant operators and plant manufacturers in all questions concerning plant and machinery safety: From initial site inspection, risk assessment and hazard evaluation to design and inspection of safety systems, including final documentation.

With our many years of expertise, we work independently of manufacturers and according to standard for the safety of your employees. A good feeling must be based on ascertained fact.

Expertise + portfolio = maximum safety
By the way: we not only support you with our expertise in ensuring the safety of your systems. We also offer a comprehensive product portfolio to help you meet the requirements placed on you.

For more information please refer to:
ifm.com/gb/safety-technology

Four modules for plant safety

Benefit from our services for operators or manufacturers of machinery, which can be commissioned separately:

Savings potential by outsourcing time-consuming processes

Legal certainty through compliance with statutory requirements

TÜV Rhineland certified technicians and engineers

Risk assessment with proven tools

www.safety-service.ifm

ifm safety service

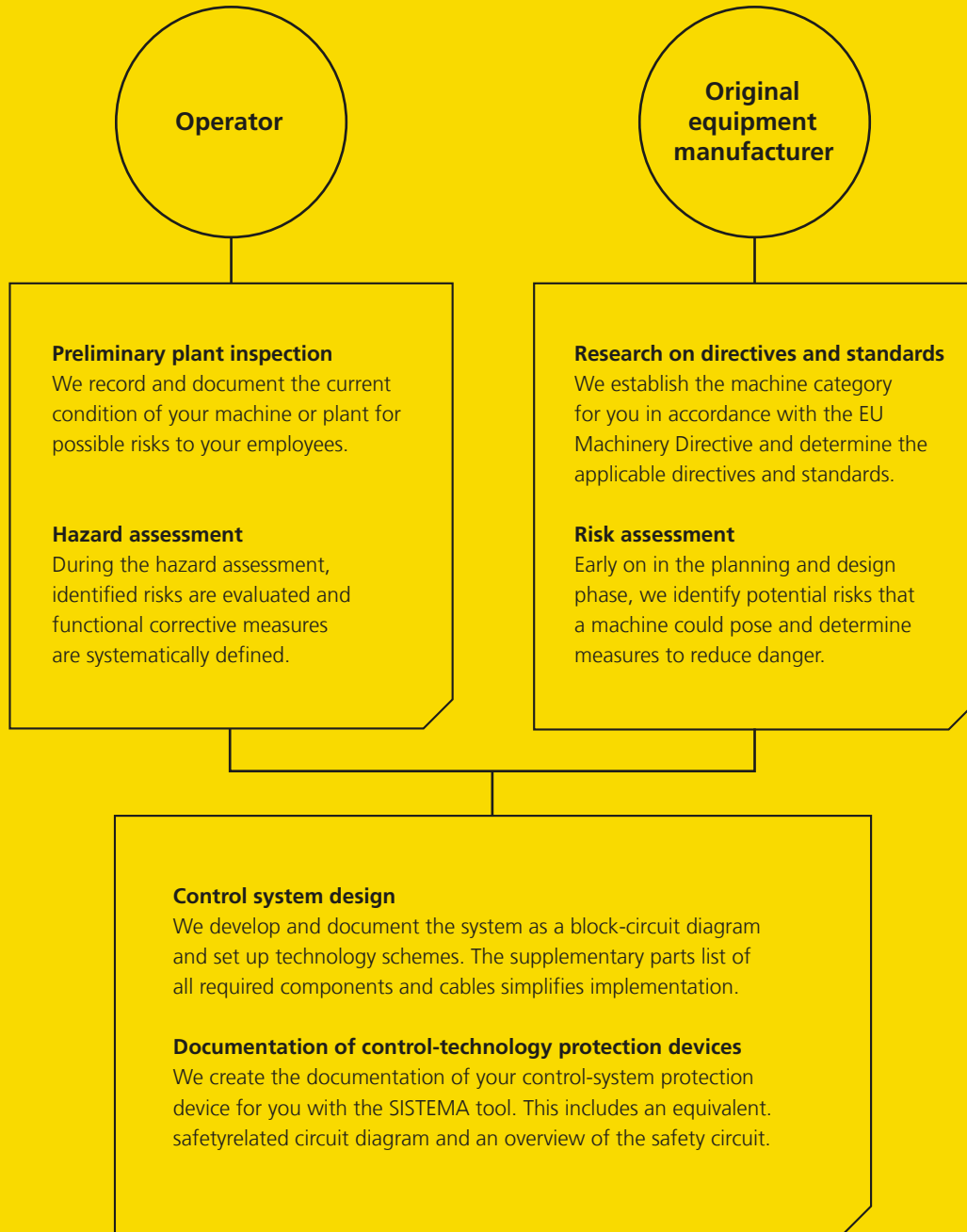**ifm safety inspection**

Both proper function and correct safety distance of protective devices must be checked at regular intervals. Mechanical wear or modifications can result in changes preventing reliable protection.

We offer this inspection, manufacturer-independent and compliant to standards according to EN ISO 13855.

ifm safety engineering

Operator

Original equipment manufacturer

Operator

Preliminary plant inspection
We record and document the current condition of your machine or plant for possible risks to your employees.

Hazard assessment
During the hazard assessment, identified risks are evaluated and functional corrective measures are systematically defined.

Original equipment manufacturer

Research on directives and standards
We establish the machine category for you in accordance with the EU Machinery Directive and determine the applicable directives and standards.

Risk assessment
Early on in the planning and design phase, we identify potential risks that a machine could pose and determine measures to reduce danger.

Control system design
We develop and document the system as a block-circuit diagram and set up technology schemes. The supplementary parts list of all required components and cables simplifies implementation.

Documentation of control-technology protection devices
We create the documentation of your control-system protection device for you with the SISTEMA tool. This includes an equivalent. safetyrelated circuit diagram and an overview of the safety circuit.

www.safety-service.ifm

Best possible protection at the pallet lift

König Brewery relies on safety light grids from ifm

In the König brewery in Duisburg, up to 55,000 bottles can be filled per hour. They are sorted into the appropriate crates. Picking for orders and preparation for delivery takes place in the intermediate storage area. In the course of this process chain, the crates and pallets have to be taken up several floors. The most important component of internal logistics is thus an appropriately dimensioned and frequented pallet lift system. To ensure best possible protection of employees in the working area of these vertical conveyors, the brewery has upgraded its safety devices to the newest state of the art with safety light grids from ifm.

Coal, steel - and Pilsner: Not only mining and heavy industry have shaped the history of the Ruhr area. In many cities of Europe's largest densely populated area, the tradition of brewing beer was established around the same time. This was also the case in Duisburg, where Theodor König founded his brewery in 1858, and König Pilsener is still brewed and bottled there today. Whereas in the early days the demand could still be met with manual labour, much of the brewery's work is done today with machine support.

For example, in the intralogistics: Starting with the filling and sorting of the bottles into the respective beer crates, through transport of the crates to intermediate storage, order picking, and delivery, a lot of processes run automatically here.

Constantly running lifts as a logistics hub
"The crates are brought to their respective destinations on pallets", explains Roland Schoppmann. The master electrician is responsible for the maintenance of the filling plant. Due to structural changes and expansions in the course of the company's more than 160-year history, the individual stations through which the beer passes from bottling to delivery are distributed over several floors. The central hub in this system is a total of five pallet lifts, each of which can transport a pallet with up to 40 crates up and down. These lifts are basically never still:"55,000 bottles can be filled per hour at peak", says Schoppmann. In less than a minute, a pallet is filled and ready for transport to the interim storage facility. Empty crates also have to be delivered at the same rate. In addition, there is the flow of pallets towards the delivery ramp. "So we cannot afford a long-term standstill of the lifts", says the master electrician.

ifm.com/cnt/koenig

"We have already worked together with ifm in other areas of automation and, so far, have always been satisfied with the products and the partnership-based, solution-oriented cooperation"

Safety barriers reduce the risk of accidents

In order to be able to carry out maintenance work on the conveyor system or rectify faults, it is necessary to keep the areas in front of the lifts accessible. "Not accessible to people, on the other hand, are the lifts themselves, while they are in operation", Schoppmann emphasises. "The potential danger for the person in the lift would be far too great. That's why all access points to the danger zone of the lifts have been fitted with safety light barriers so that the lift can come to a safe standstill immediately if anyone passes through the protection field." The company is now bringing this protective measure up to the current state of the art and is relying on safety products from ifm for the first time.

More precisely: relying on safety light grids which enable unhindered passage of material through the protection field, but bring the hazardous movement to a standstill as soon as a person interrupts the protection field.
This function, also known as muting, is already integrated in the ifm units and ensures that the protection field can only be muted for a short time for pallet transport. The distinction between pallet and person is made possible by specially arranged optoelectronic sensors, so-called muting sensors. These are already fully pre-prepared sensor systems which, depending on the requirements of the material to be

transported, monitor the conveyor area in the danger zone either crosswise or with parallel arranged light beams. As necessary, muting can be carried out with two photo-electric sensors aligned crosswise or parallel to each other. In the case of parallel-aligned muting devices, the objects can change their position and width. With cross muting, the position and width of the object is decisive and only if both factors are correct will the light barriers be interrupted simultaneously and the light grid muted.

Maximum protection against unauthorised access

Sensor systems for both muting variants are available for ifm safety light grids. Since, in the case of the König brewery, only pallets with a fixed width can be transported in the lifts, a sensor system with cross muting is used.

The sensor system is connected, without much effort, directly to the base unit via pre-prepared plug connectors and is also evaluated there. The advantage here is that the system can also be integrated relatively easily into existing infrastructure. The usual additional expense, that would usually be incurred for laying cables from the muting sensors to the central control cabinet, is thus eliminated.

Additionally, clearly visible LEDs are integrated in both the basic units and the associated sensor systems, which greatly facilitates the alignment of the light grids. Depending on version, the basic unit of a light grid can monitor a protection field with a height of up to 910 millimetres and a maximum area width of up to 12 metres. All technical requirements of currently valid safety standards for area monitoring are met.

Cooperation in partnership

"We have already worked together with ifm in other areas of automation and, so far, have always been satisfied with the products and the partnership-based, solution-oriented cooperation", says Schoppmann. "For this reason we decided to also use ifm products for safety-related applications, especially as we were convinced of the expertise and experience of the ifm staff in this field during an appointment at our company.

An initial pilot project showed how easy it actually is to manage the safety grids. For the modernisation of the lift protection, we therefore decided in favour of devices from ifm. This is another successful measure for best possible protection of our employees in automated areas at all times."

Bottom line

With its safety products and technical expertise in the field of machine and plant safety, ifm helps König Brewery maintain state of the art safety at their important intralogistics hub in Duisburg – for the benefit of the employees.
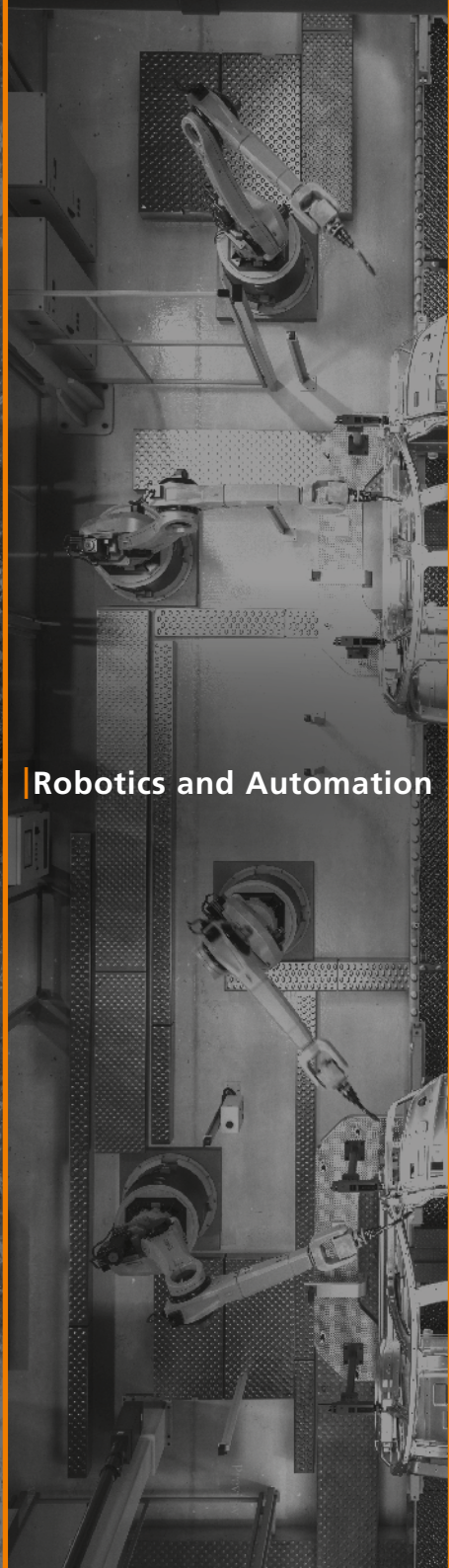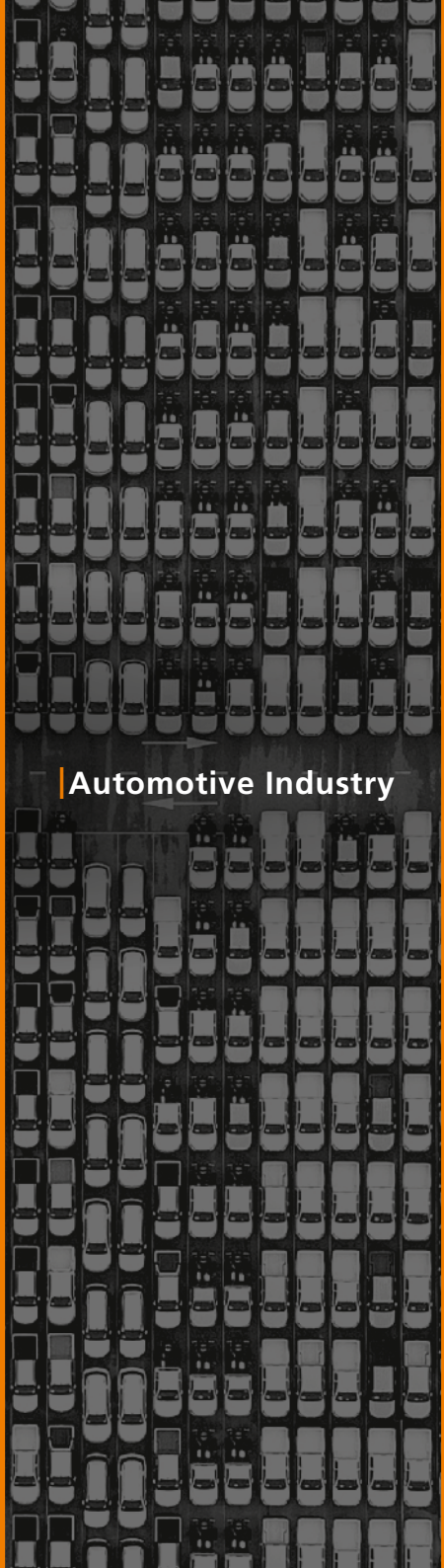
ifm.com/cnt/koenig

|Food and Beverages

|Water and Wastewater

|Robotics and Automation

|Automotive Industry

|Mobile Machines

Why we don't (or can't) think like Einstein

"You don't have to understand the world, you just have to find your way in it."

A quote attributed to Albert Einstein. Would such a genius have said the same in today's world? Probably not. The lack of resources due to the growing world population is becoming more and more noticeable. The inefficiency of our behaviour patterns is clearly affecting the planet. In the face of these challenges, it is no longer enough for us to make our way in the world. We must change it. We must contribute to preserving a planet that is worth living on in the future. Those who want to create solutions must understand the challenge.

In other words: We need to understand the world in order to improve it.

You don't have to be a genius to understand this. Not a researcher. Not an innovator. Though innovation, research and genius should be driven by this insight. That, at least, is our goal. And with this goal in mind, we develop solutions for the most pressing challenges of the future, with an understanding of the challenges faced in each individual industry.

www.ifm.com

We love it when a plan comes together

And so do our customers

Actually, each of our products would have earned it: Having its quality, performance and added value confirmed by our customers. But our application reports don't just tell the story of a sensor. They tell the story of the joint success of the customer and ifm. Because one thing is clear: ifm is more than hardware, more than software, more than solutions. ifm is a solution provider, partner, pioneer and companion. This is also reflected in the small selection of stories we would like to offer you in the following.

Good automation solutions live from new insights, open minds, courageous approaches. This applies to our developers as well as to our colleagues in sales and, last but not least, to you – our customers. Take a moment to be inspired by the exciting stories from a wide range of industries. After all, who says that these success stories cannot be adapted to suit you?

And if you need someone to develop a plan together: You know where to find us.

Keeping an eye on the carbon footprint of every single product

The HARTING Technology Group is one of the world's leading suppliers of industrial connectivity solutions. To make production as efficient and environmentally friendly as possible, the company is digitalising its production facilities at its headquarters.
▶ **ifm.com/cnt/harting**

Through fire and water with ifm

Iturri is a global manufacturer of fire engine chassis. They have been relying on the control solutions for mobile applications provided by the automation specialist ifm for more than 20 years.
ifm.com/cnt/iturri

Trust is good, control is better

The Berchtesgadener Land dairy, a cooperative organisation situated in the picturesque foothills of the Alps, processes around 300 million kilograms of milk every year. The dairy relies on innovative temperature sensors from ifm in key process areas.
▶ **ifm.com/cnt/berchtesgadener-landmolkerei**

Harnessing the power of water

The Italian energy company CVA generates electricity mainly from renewable hydroelectric sources, using the power of water. To ensure reliable operation of all its power plants, the company relies on solutions from the automation specialist ifm.
▶ **ifm.com/cnt/cva**

Smart condition monitoring of a feed pump

In order to be able to precisely monitor the maintenance requirements of the feed pump of a CIP system, ifm prover uses condition monitoring with moneo RTM and its integrated SmartLimitWatcher tool. This allows for exact vibration analysis even in changeable operating states. **ifm.com/cnt/slw**

ifm.com/cnt/application-reports

# Everything the auto-mation heart desires

The online shop: find more, search less

Where does efficient plant automation start? We think: when shopping! And that's why our online shop is designed to guide you to your desired product as quickly as possible. At the same time, we also want to offer you maximum service when shopping online. For example, the selectors help you to narrow down the search to the suitable product versions. In your personal my ifm account you can easily import comprehensive order lists, create your own offers in no time and convert them into an order with just one click.

Products, accessories and interesting facts
Are you looking for the suitable accessories for your product? No problem! We have compiled everything you need to know about installation, parameter setting and set-up and added it to the respective product page.
Of course, in our online shop you will also find lots of interesting information about the technologies in our sensors, inspiration in the form of application reports, factory certificates for free download, and, and, and...

So if you are thinking about how to shop more efficiently, a visit to ifm.com is definitely worthwhile!
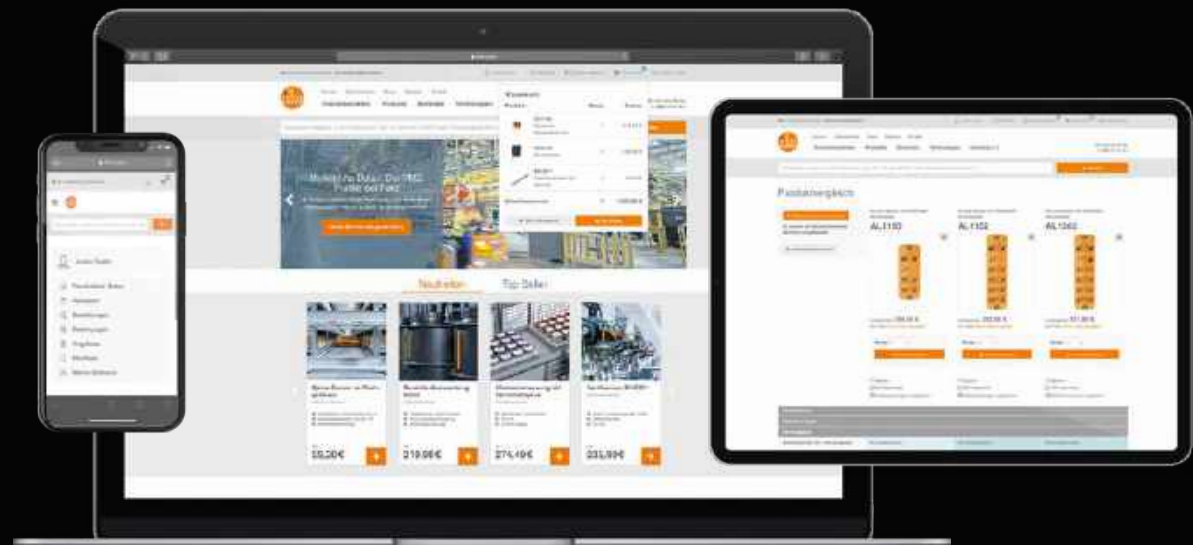
More transparency: Search for products, select, compare, get a support opinion, choose – and buy at your individual price.

More efficiency: Import order lists, create favourites, place previous orders again.

More flexibility: You decide how you pay and when we deliver. If you are in a hurry: use our express shipping.

More you: Create offers yourself, convert them into orders with one click, track shipments and status, save and retrieve invoices. my ifm – it's yours!

More future: Digitisation, Industry 4.0, finding solutions, downloading software, managing licences – all in one place.

More time: No closing times, no nasty surprises, shopping at any time, always up-to-date availability – and a reassuring 6 weeks' right of return.

www.ifm.com

That's it? Not by far!

Our entire product portfolio is available online!

ifm.com