OMRON

Spring 2007

technology&trends magazine

JCDecaux: "Who says durability is an old-fashioned argument?"

Never stop...

JCDecaux keeps the adverts scrolling

V7 inverters are at work behind the scenes in streets all over the world...

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The V1000 inverter is designed for 10 years lifetime...

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Smart Active Parts cut costs

New machine generation of N. Schlumberger with full teleservicing...

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Faouzi Grebici
European
Sales & Marketing
Manager

Structure follows values...

It is common to hear in the business sphere that "structure follows strategy". At Omron we took it further and we say, "structure follows values". Technology for a better society is our driving value, emphasizing our unique approach. Our products are green, our manufacturing is green and our global operation links with the society they are in. Those values are enforced through the vision of "Humanising machines" with advanced sensing and smart control. Reliable operation "neverSTOP", zero-defect production "neverFAIL" and intuitive integration "JustCREATE" are the corner stone of our strategy. Specialisation as a company culture is the structural approach that we will pursue to fulfil not only our goals and vision but also to enforce our values.

In this issue we will share the knowledge about safety with a well-known professor of Darmstadt University and stories about inverters that NeverSTOP and NeverFAIL and the advantages of CompoNet. ■

Content

Main topics

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News & Trends

Product News

Omron Europe

Our values... Our structure

To reinforce Omron's competitiveness in the field of industrial automation, Omron Europe recently restructured. One of the drivers behind this structural change is sales & marketing manager, Faouzi Grebici. We asked him what makes Omron, Omron?

Can you elaborate on values?

Faouzi Grebici: Values can be indeed an abstract statement that fits well inside a 5 years mega-plan or corporate report, but doesn't relate to people in the trenches. At Omron, we live by it. Our factories have been green since 1997 and our PCB production has been lead free since 2001!
Our management is local and sensitive to local societies. Once a year Omron dedicates a full day to helping local communities. This is just us!

How can you reconcile Values and the harsh reality of industrial automation?

Faouzi Grebici: As we care about the communities we operate within, we also attach great importance to the people operating the machine we automate. Machines that sense, see, move, think, protect humans and may in the future even self-heal are reshaping the skills needed on the shop floor.

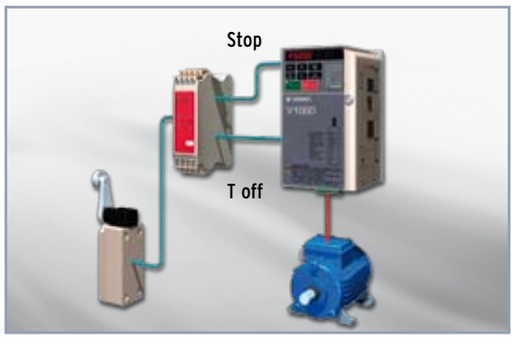
And how do you see those skills evolving?

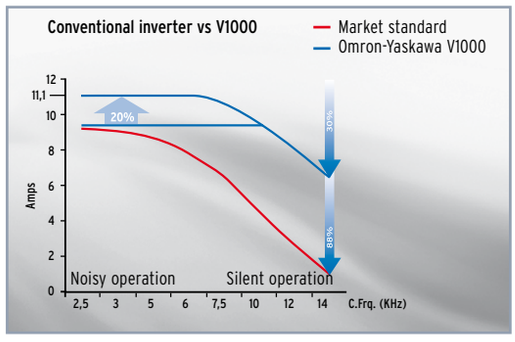
Faouzi Grebici: Simply turning conventional operators into true creators...
Our strategy is based on reliable operation with products that outclass anyone in terms of maintainability and reliability, solutions in detection and inspection that achieve zero-defect in production, and total automation relying on full integration and openness.

Specialisation is an interesting subject...

Faouzi Grebici: As we asked ourselves, "Technology for what?" We should also ask ourselves, "Specialisation for what?" Specialisation is not only about products it's rather about skills. Specialisation is not a function we allocate to ourselves, it is rather a mark of acknowledgment from outside to add value in a unique way. It's Image! Specialisation doesn't touch a part of the organisation or is related only to the front line, it is rather a culture! Finally, I would say specialisation is neither the final goal nor an isolated task from isolated departments. It has to support an overall direction and strategy par excellence! ■

Quality has a new formula, 10 x 100 = 1





Time-saving safety feature

Safety is embedded in the V1000 from the inside out, making it easy for you to integrate the inverter into your machine system and avoid difficult connections to safety controllers. Dual safety inputs (acc. to EN954-1 Safety Category 3) will disconnect the motor faster at the first sign of trouble, while reducing external wiring and contactors.

V1000 double rating: performance guaranteed

V1000 is able to increase the output current by around 20% when moving down in frequency carrier thanks to its double rating. The standard setting is constant torque (CT: 150% rated current/1 min) and increasing output current when in the variable torque mode (VT: 120% rated current/1 min).

V1000, a new generation inverter

As the market's largest and most trusted supplier of inverters, Omron-Yaskawa is driven by quality and has made a habit of building this into its inverter families. But this quality now has a new formula, 10 x 100 = 1, because the V1000 breaks with all conventions and constraints.

The innovative design together with modern manufacturing techniques make the V1000 built for 10 years life-time without maintenance. Moreover, its features and performance guarantee a 100% match with the expectations of users, such as machine builders. Beyond this, a field-failure rate of less than 1 in 10,000 means that it will continue to outperform all other inverters long after the average service-life expectancy is over.

Our obsession with quality has resulted in the most dependable products available in the industry today. And we never stop working to improve quality even further. This is fully reflected in our latest inverter, the V1000.

Its new features, not only enable it to outperform previous inverters and make it even easier for users to install and set up, it is also more compact by far. But the big difference is that it takes quality and reliability to a new high

10 years lifetime

Designed for:

100% expectation match

1 in 10,000 field failure rate

level. For no matter where you want it to operate, it will deliver the same high performance for many years after you have fitted it and forgotten about it.

Dual CPU architecture and built-in vector control

Unlike previous inverters, the V1000 delivers optimum speed control and high starting torque thanks to the current vector control. As opposed to other techniques, such as voltage vector control, current vector control uses the flux current, which is an actual measurement rather than an estimated value. It employs a dual CPU concept with a CPU device that is four times faster than those on board previous inverters. This means a faster-than-ever scan cycle that boosts motor control performance, especially in current vector control applications where speed is of the essence.

Features of the V1000 that will delight your customers are the noise-suppression function that decreases motor noise at low carrier frequencies and the embedded safety. These put machine operators at less risk to safety hazards and have a positive effect on the general working ambience. ■

View the essential features in less than 7 minutes on www.omron-industrial.com/V1000

For key benefits go to page 15

At the heart of JCDecaux's success lies the durability of its billboard. This is why reliable inverter technology was at the top of the shopping list of this world-leading outdoor advertising group. Now V7 inverters are at work behind the scenes in streets all over the world.

JCDecaux keeps the adverts scrolling thanks to V7 inverter

JCDecaux is number two worldwide in outdoor advertising and operates more than 700,000 advertising displays in 3,400 cities across 48 countries. Part of the company's success is due to focusing its attention on the qualitative aspects of display media. It revolutionized the market with its new-generation scrolling panels with their back illumination and modern lines.

Another factor in JCDecaux's success has been the consistent use of leading designers to ensure that its products display advertiser's messages to maximum effect. And it was for reasons of quality and reliability that JCDecaux turned to Omron for inverters to use with two of its new products. Mr Nicolas Maes, responsible for the automation part of the technical studies at JCDecaux's assembly site is positive about this point. "We cannot envisage any failure at any time. Our business is to supply excellency to our customers, and this 100% efficiency has to be found in the products our partners supply. In our panels and columns, there is absolutely no room for a breakdown." That is simply why Sysdrive J7 and Varispeed V7 inverters were chosen to drive the motor that makes scrolling of the advertisement possible for the CIP (City Information Panel) and Senior® panels, respectively. The company argued that time is money and advertisers were not prepared to pay for time when panels were not scrolling.

Harsh weather

A further consideration in choice of equipment was the extremely hot and cold interior temperatures of the panels during seasonal extremes.

Panel placement is frequently in exposed places with high visibility and no consideration can be given to heat and shade. In such cases, equipment is required to perform equally well outside of the normal operating limits. Mr Maes adds: "When you have to deal with panels placed at more than 10 m height, there is no hesitation, you immediately turn to reliable and robust products. Moreover, since our panels are being installed everywhere in the world, we can best deal with Omron, who is capable of supplying products that will have a long service life at any location. On top of that, Omron and JCDecaux have always communicated effectively on the possible improvement of panel motorization". Who says durability is an old-fashioned argument?

Cramped space

As the space inside the advertising panels is very limited, the compactness of the inverters was another important factor. Both the Sysdrive J7 (and old version 3G3JV) and Varispeed V7 (and old version 3G3MV) inverters are very compact and measure less than 68 mm wide x 128 mm high x 131 mm deep. Their small size and compact form was in line with JCDecaux's needs when they chose Omron eight years ago.

Mr Maes looks positively towards the future, with Omron at his side, and mentions the valuable know-how and experience of the group: "Once you experience the efficiency of the partner, you know that they can support you with expertise, with quality products and service. So far, we have acquired no less than 35,000 Omron products and they proved they were up to it. I feel confident to advertise our mutual trust." ■

Read customer experiences about the reliability of our inverters: www.never-stop.info

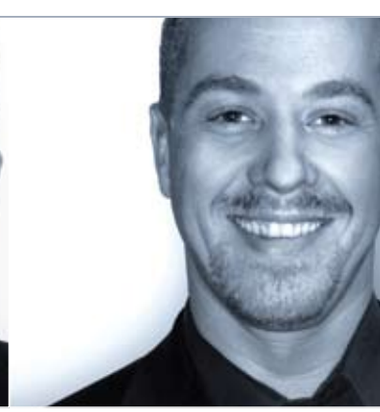
Design your billboard at www.jcdecaux.co.uk/creativelibrary/visualiser, we guarantee the scrolling

Nicolas Maes

JCDecaux, responsible for the automation part of the technical studies at JCDecaux's assembly site

Christophe Sénéchal

Salesman Paris District



Arnaud Croizit

Systems Application Engineer from OEE-F, in charge of JCDecaux

Safety
simplified to the max

Providing as much safety as is necessary to protect employees and equipment, whilst minimising the processes and inputs required to achieve this is a challenge that machine-designers are confronted with on a daily basis.

Industry leaders and academic experts alike are working hard to find feasible solutions and, in turn, set reliable international standards for safety. A leading expert in this field is Dr. Ing. Alfred Neudörfer, Academic Director of the Institute of printing machines and

Dr.-Ing. Alfred Neudörfer
Academic Director, Institute of Printing Machines and the Printing Process, Darmstadt University of Technology (TUD)

Dr.-Ing. Alfred Neudörfer

Born in 1947 in Luby u Chebu, Czech Republic, Dr. Neudörfer studied machine technology in Pilsen, Czech Republic and Darmstadt, Germany. His doctorate from the Darmstadt University of Technology was awarded for the thesis "The integration of ergonomics in methodical design".

Collecting extensive practical experience in safety solutions, he has worked as a project engineer for balance machinery, and as a safety Inspector for the German health & safety insurance body for print and paper machines, BG.

Now the Academic Director of the Institute for Printing Machines and Printing Process at the Technical University Darmstadt, Dr. Neudörfer is also a guest professor at the Nagaoka University of Technology, Japan. His published works include two books and many articles related to machine safety.

Institute for printing machines and the printing process at the Technical University Darmstadt:

Darmstadt, located in Germany's southern Rhine-Main area – one of Europe's most flourishing commercial regions– is a well-known centre of science and technology. With an outstanding academic reputation, the city's Technical University originates from 1826. Now, with around 20,000 students, it is a centre of excellence for research and development, recognised by national, European and global scientific bodies and institutions, as well as industries. Each year, 150 to 200 engineers graduate with a Master's Degree in machine design.

the printing process at the Darmstadt University of Technology (TUD) in Germany.

Sharing thoughts with Dr. Neudörfer, Lucian Dold, Marketing Manager at Omron's European Sensor Business Unit in Stuttgart, discussed the latest approach to making modern machines safer.

With the recent launch of its new Interactive Safety Guide in September, Omron also aims to focus industry attention further on safety, as reflected in the company's motto "Safety: Transparent and understandable".

Lucian Dold: Where do you see the biggest challenges to ensuring a high level of machine safety?

Dr. Alfred Neudörfer: Some engineers still consider safety issues as surrounded by some kind of "black magic". In the realisation of their projects, they are reluctant to challenge existing standards and directives. From their education, they perceive safety issues to be set in stone – immutable parameters derived from a huge bureaucratic process. As a result, safety considerations are often added after the rest of the machine design is completed. This is why inherent safety design is difficult to implement in the creation process of developing a machine.

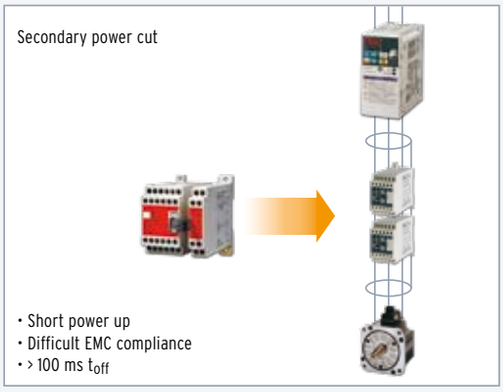
We must start to consider safety design as a structured engineering approach that is no different from mechanical or electrical engineering. Only if these practices are changed and safety principles are considered from the first steps in the machine design process, can safety be "simplified to the max": achieving maximum safety whilst optimizing operational and system complexity and costs. ■

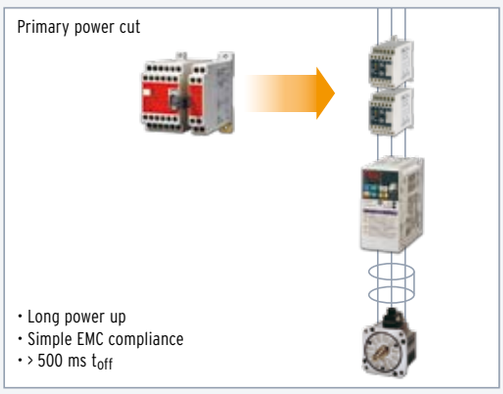
Read the full article at www.omron-industrial.com/neudoerfer

Drive safely

Put together what belongs together is the simple reason why the new generation of inverters introduced by Omron Yaskawa has embedded safety functionality. Competitive machinery demands highest reliability of drives to ensure maximized throughput.

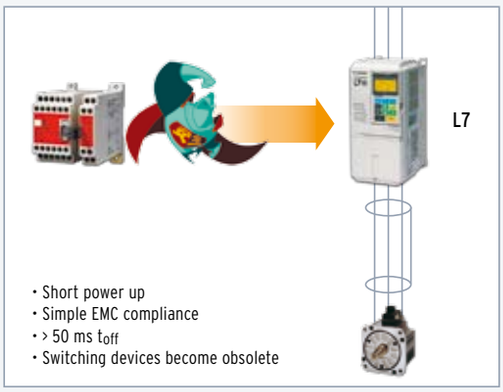
Without embedded safety





Starting with the L7 inverter line and now the F7 and also the Sigma II servo drive, safety is now embedded by default in the miniaturized V1000 series. The TÜV approved circuit meets category 3 of EN954-1 and can directly be connected to the machines safety circuit. ■

Fully embedded safety



For more about safety check out our Interactive Safety Guide on CD or www.ce-safety.info/omron.html

Servo-driven glue dispensing devices with the highest dynamics are being used in the production of new top-segment car models being produced by a respected car manufacturer in the south of Germany. Behind these high-performing devices are Xtra-Drive servo drives.

The plant in the south of Germany has a long and proud tradition for the quality of its products, and it is here that top-segment cars are produced and supplied to customers worldwide. When the company decided to install servos from the Xtra-Drive family, Omron's reputation for quality and reliability was uppermost in their minds.

In car body manufacturing, glueing in particular is becoming increasingly important in addition to a wide variety of welding processes. Compared with hydraulic and pneumatic dispensing systems, the new servo-driven dispensing equipment installed in the plant offer various advantages with regard to space saving. For instance, there are no oil, air and associated feed lines, and there are advantages particularly regarding dynamics, quantity and control accuracy.

Because the adhesive is usually applied by robot, the dynamics of the dispensing system in relation to the widely varying robot speeds, are of particular importance. This is due to the quantity distribution being proportional to the speed of robot travel.

Following extensive practical tests and prototype development in close collaboration with Mr Orgeldinger, Key Account Manager at Norgren, the car manufacturer decided to use the Xtra-Drive servo. M. Stöffler, who is in charge of the Plant Engineering department, considers the main advantages lie in the extremely small design of Xtra-Drive with PROFIBUS on-board, plus the option for a single-phase power supply, even at maximum output. And, of course, the familiar high quality and worldwide availability played a very important role in the decision to choose Omron.

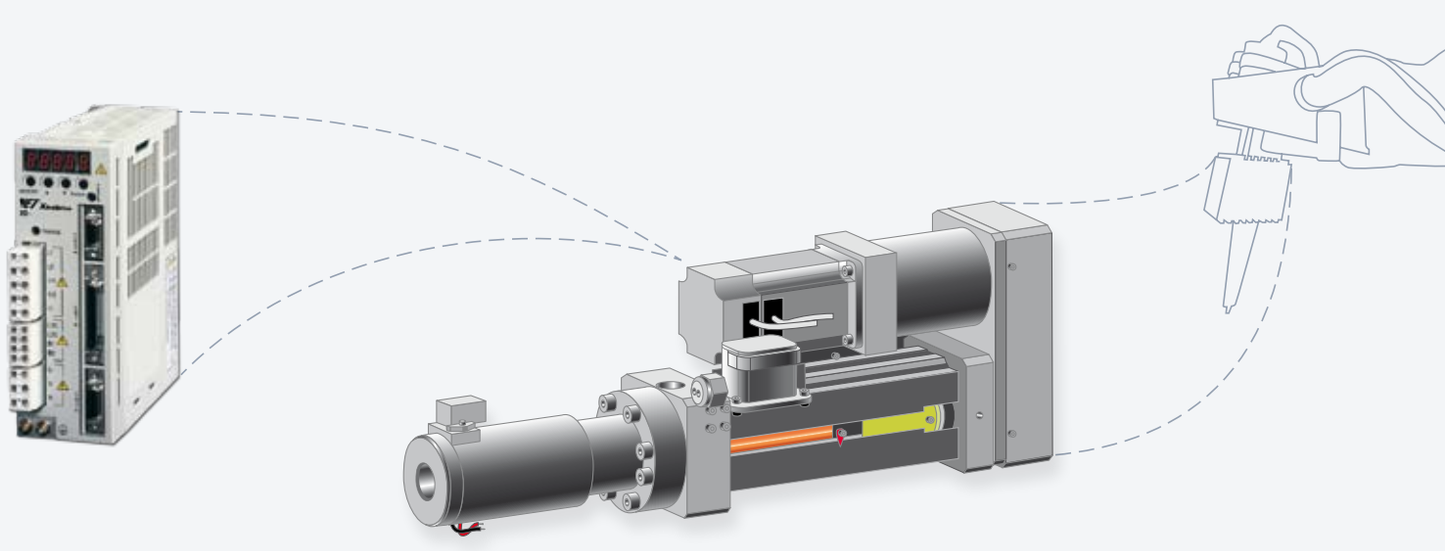
Clean and efficient production in car manufacturing thanks to servo-driven glue dispensers

By Matthias Caliebe, Field Sales Engineer, Automation and Drives

In the meantime, more than 200 servo-driven dispensing devices equipped with servos are being used successfully at the car manufacturers German plants. ■

Also our advanced ZS sensors can detect the exact position and thickness of glue go to www.never-fail.info

Go in detail **expertarea**



New keywords in temperature control:

Control and connectivity

The CelciuX° is a new, modular, multi-channel temperature controller that interfaces to a wide range of industrial networks. It has easy program-less communication with Omron and third-party PLCs and HMI. The CelciuX° incorporates smart and easy-to-use temperature control technology, while Omron's unique Gradient Temperature Control (GTC) algorithm makes it capable of handling complex temperature profiles.

Control

The CelciuX° has the flexibility to support many applications. Its control-loop cycle of 250 ms per channel makes it suitable for all general-purpose applications. The 2-PID control algorithm and our reliable auto-tuning algorithms reduce commissioning time.
CeliuX° also offers special algorithms and strategies like GTC, and it can monitor heater status with heater alarms for 1 or 3 phase, or reduce peak currents with output-on scheduling.

Connectivity

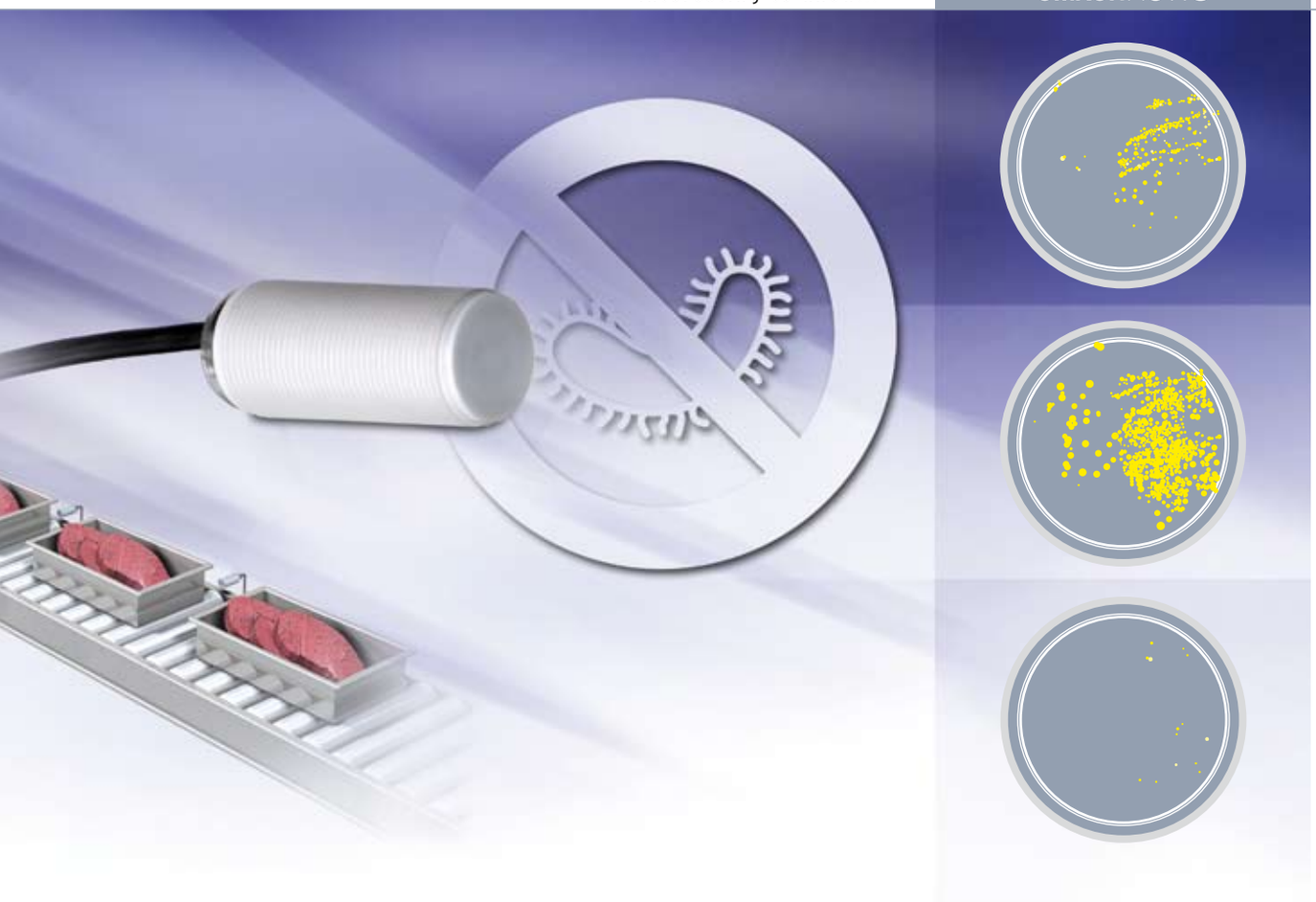
A wide range of industrial fieldbus connections is possible from Modbus to Profibus. With the addition of the HFU, it is possible to connect to CelciuX° to Omron or 3rd party PLC without programming the communication protocol. The CelciuX° acts as a master and push&pulls the data into the PLC memory area, ready for the PLC to use. Furthermore, CelciuX° is the temperature control building block for Omron's Smart Platform. ■

OMRONnews

ZFX vision Sensor – Easy meets advanced

Usability is key – As its little brother ZFV, the ZFX keeps the right balance between usability and functionality. It provides much higher inspection and communication capabilities but is still easy to use via its large 3.5" built in touch screen. ZFX offers advanced functionality that users can understand.

So for easy vision with advanced result – choose ZFX.



Bacteria growing on the sensor after touching with finger.

Bacteria in ordinary sensor after 12 hours.

Active bacteria reduction on E2F-D housing after 12 hours.

Anti-microbial casing for inductive sensors

Food processing and pharmaceuticals are branches of industry in which hygiene and absolute cleanliness have to be the focal point. Micro-organisms can multiply on equipment within a short time, bacteria can flow into mechanical weak spots, such as threads, grooves and small cracks, and spread.

In cooperation with ENSINGER GmbH and Lumberg, a new approach was taken to reduce the risk of food contamination using anti-microbial material for sensor casings.

ENSINGER GmbH is one of the leading European suppliers and processors of industrial plastics and high-temperature engineering plastics. Its high performance plastics are proven materials and are used extensively in machinery and plant construction in the automotive and aerospace industries, electronics and medical technology, as well as in many other sectors with high quality demands.

In addition, Lumberg's core areas of expertise are development, manufacturing and sales of electromechanical and electronic components, of which connector systems and components comprise the principal part.

For the casing of the inductive sensor E2F-D, the ENSINGER plastic TECADUR PBT with the antimicrobial additive Alphasan® was the material of choice. The additive is biocompatible and hence FDA approved. Such sensors are used in conveyor belts for food processing and filling plants, or as position controls for machine parts, e.g. in flap valves, conveyor belts, (cutting) tools or other moving metal parts.

The Lumberg Food and Beverage product line meets stringent hygienic standards and is able to withstand strong commercial cleaning agents, harsh chemicals, as well as high-pressure cleaning by use of V4A stainless-steel and PVC. ■

ENSINGER ASK. THINK. SUCCEED.

lumberg

DyaloX packages with PC based HMI software

From Q2, the DyaloX IPC can be purchased together with HMI software. The first option offers NS-Runtime that enables users to re-use an NS-series HMI project and run that on the DyaloX. The second package is called CX-Supervisor Machine Edition, a standard Windows HMI package that uses open technologies like ADO, ActiveX and OPC to provide comprehensive database connectivity, multi-vendor support to OPC Servers and VBScript support, which is extendable with off-the-shelf and custom controls. ■

ZFX vision sensor – Easy meets advanced

Usability is the key for Omron's family of easy vision sensors. In addition to the well-established easy vision sensor ZFV, the new ZFX adds advanced functionality to usability.
Via it's 3.5" touch screen, the ZFX provides an easy and intuitive set-up method for its full range of professional inspection, communication and support tools. The ZFX comes with colour and monochrome functionality and best-in-class cameras. ■

F3S-TGR-N non-contact safety switches

TGR-N non-contact switches monitor the status of guarding doors. LED for easy diagnosis and stainless-steel housing for high hygienic standards in the food industry are available. ■

ZEN programmable relays – Flexible automation expanded

With a total choice of 4 different 10 I/O (6 I, 4 O) CPU units and 3 different 20 I/O (12 I, 8 O) units, we can fulfil all required functionality for all kind of control automation. If 10 I/O or 20 I/O is enough for your system, we offer two new models with fixed I/O. And if you need more I/O and more functionality, the ZEN-10C4 is equipped with communication and offers the possibility to link up to 32 units. ■

Features and benefits

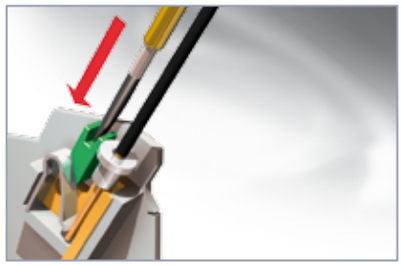
- 54% less mechanical elements – reduced size, improved reliability
- On-line tuning technology – optimal motor performance, regardless of the circumstances
- Function block diagram – saves up to 70% programming time

Convenient on-line tuning

Unlike previous inverters, the V1000 has a smart "on-line tuning" feature that takes "auto-tuning" a stage further. This continuous method of tuning ensures that any temperature deviation large enough to affect electrical parameters governing the motor speed will be adjusted before any speed variance can occur.

Space-saving side-by-side mounting

Remember when side-by-side mounting meant having to leave spaces for ventilation? Well, not with the V1000. A patented, special alloy, hybrid cooling fin allows you to mount multiple units close together without overheating problems and saving vast amounts of panel space.



Time-saving screw-less terminals

Have you ever stopped to think how much time it takes to wire hundreds of terminals with twelve screws per inverter? With the V1000, you can reduce installation time (and therefore costs) considerably thanks to the use of screw-less terminals.

10 x 100 = 1
Quality has a new formula

Thanks to patented design of the V1000 series and modern manufacturing we can promise at least 10 years trouble-free operation. These new features guarantee a 100% expectation match.

And with a field failure rate of less than 1 in 10,000, the new V1000 series inverter will outperform all other inverters long after it has been implemented. ■

If you would like to know more about Omron's latest products, please see our Product News magazine or have a look at www.omron-industrial.com

CompoNet™, the open network for high-speed control

Fast and intelligent – a new standard for smarter control networking

By combining Omron's application experience with proven CIP™ communication technology, CompoNet™ provides an efficient networking solution for smart sensors, actuators and remote I/O. Fast I/O data exchange and easy set-up are combined with transparent messaging for access to intelligent field devices. Reduced wiring and simpler troubleshooting will help you build the best machines in less time.

CompoNet is an ODVA network

CIP – the Common Industrial Protocol – is an open communication standard providing seamless data transfer between different physical network layers. You can freely choose the best CIP network for each part of your system, and mix them any way you want. CIP lets you access any device from any point in your network.

The CIP specification, as used in the EtherNet/IP™, DeviceNet™ and CompoNet™ networks, is controlled by ODVA, the Open DeviceNet Vendors Association. With nearly 300 member companies worldwide, developing a wide variety of products, ODVA makes sure that these products adhere to the

CompoNet for easier network layout

In conveyor and warehouse applications, I/O points are spread over a wide area, with only a few points per location. The free network topology of CompoNet and IP54 I/O units allows you to simply connect I/O in the field wherever you want. Power is provided via the system cable and IDC connectors, allowing fast configuration changes without re-routing the network cable.

CompoNet for easier machine customisation

Machine modularisation helps to meet the increasing end-user demand for machines adapted to their specific needs. CompoNet is the fast remote I/O bus system that allows machine builders to build custom machines from standard sections, while keeping high performance and one-connection configuration. The ultra-compact I/O modules can be installed in the smallest of spaces.

CompoNet™ is a new open control network based on CIP™ technology, combining high speed and flexible network topology. With simple installation and extensive diagnostic features, it will help to reduce your cost of operation.

standard for easy interconnection between vendors. Omron, as one of the four founding members of ODVA, plays a leading role in developing future technologies for industrial networking.

Achieve more with less effort

CompoNet offers the ideal mix of high speed, ample capacity, and ease-of-use needed to let you build the best machine, the smartest warehouse, or the most flexible conveyor system. And what is more important, you can achieve this in less time, due to simplified programming, wiring, device set-up and troubleshooting.

Easy and flexible installation

CompoNet flat cable and isolation-displacement connectors make installation fast and faultless. Power and communication are combined in one cable. Branch connectors allow you to easily add or remove devices for maintenance and troubleshooting. Alternatively, you can use simple twisted-pair cable and power each node individually.

Repeater units extend the range of CompoNet up to 1500 m, and can link sections of different cable types, allowing mixed topology networks. With up to 63 repeaters in one network, the wiring in warehouses can be reduced.

Intelligence built-in

All of Omron's CompoNet slaves contain early-warning systems that monitor system performance continuously. CIP allows you to access the diagnostic data in each device from anywhere in your system. In the maintenance view on your PC, you quickly find where maintenance is needed, or you can drag-and drop a preconfigured Smart Active Part into your HMI application to retrieve maintenance data without programming.

CompoNet was developed with one aim: to reduce your cost of operation. It fulfils its promise by letting you achieve more with less effort. ■

For an introduction to Omron's remote I/O range visit:
www.smart-io.info
For more information on the Open DeviceNet Vendors Association visit:
www.odva.org

CompoNet™

CompoNet key features:

- **High Performance**
  1000 I/O points in less than 1 ms, max. 384 nodes
- **Simple Settings**
  Automatic baud rate, decimal address setting, status display
- **Easy Installation**
  Fast wiring system, Flexible layout, Bit-level distribution
- **Intelligence built-in**
  Preventive maintenance data, smart diagnostics, transparent CIP messaging
- **Fast troubleshooting**
  Extensive error detection, network segmentation to isolate faults

The industrial relay – now more reliable than ever!

Omron first started developing and producing industrial relays half a century ago. The trend towards miniaturization began with the MY relay, which was introduced in 1966 and since that time over 500 million pieces have been sold. Subsequently, the introduction of smaller-sized, high-power relays for use as PLC interfaces revolutionized the field of industrial automation.

In the future, Micro-Machined Relays will emerge. These will still be mechanical relays with coils and mechanical contacts, but will be made using MEMS (Micro Electro Mechanical Systems) technology, similar to that used in the semiconductor industry. Naturally, Omron will be at the forefront in introducing such advanced designs.

Setting the bar higher

Our uncompromising approach to quality and reliability has led to new meanings for these two words. We define quality as being the ability to meet the specification always. Similarly, we define reliability as the ability to last beyond the specification. Statistically, our reliability has to be very high to fully meet the specification and it does in fact exceed specifications by far.

As a result of our continuous improvement activities and focus on quality and reliability, the failure rate of our relays in the market today is kept well below 2 ppm (0.0002 %). For our customers this “Quality First” philosophy translates directly into increased reliability and full satisfaction.

As the trend towards downsizing panels and equipment continues, today’s customers need smaller relays, which is why we are introducing a new generation of industrial relays. You will find all of Omron’s quality and reliability principles in our new, slim, industrial relay, the G2RV, which was designed to meet demands for reduced control-panel space. ■

Read more about quality, durability, contact forms and our new G2RV series at www.omron-industrial.com/industrialrelay

By Tetsuya Fujiwara, Team leader product engineering department at the power relay division,Omron Relay & Devices Corporation in Japan

New Automation Competence Laboratory opens in Istanbul

Omron has opened a new Automation Competence Laboratory at Yildiz University in Istanbul Turkey.

The facility not only enables customers and other visitors to see first-hand our solutions to their applications and fully

"...giving students first hand experience in state-of-the-art lab facilities..."

understand the complexities and benefits, it also gives young students of higher technical education the opportunity to gain vital experience before they go out into the real world of industry.

The facility is mostly at the disposal of the staff and students of the local technical university where the facility is situated, but can also be used to train customers. It is part of Omron's corporate principles to work for the benefit of society. "Graduates currently leave university without any practical industrial experience," says Dogan Ugur, Omron's General Manager in Turkey. "The new Automation Competence Laboratory will change that situation by giving students first hand experience in state-of-the-art lab facilities right on their own doorstep."

The official opening on 23 November 2006 by Ali Coskun, Turkey's Minister of Trade and Industry, received widespread media coverage, including television. ■

n. schlumberger

nsc

Smart Active Parts cut costs for N. Schlumberger

When the French-based technology company, N. Schlumberger approached Omron for a solution to update the automation of its high-level textile machinery, time and cost saving were paramount. But they wanted utmost reliability too. With Omron's solution they got both.

N. Schlumberger manufactures state of the art textile machines that are sold throughout the world from USA to Japan. However, the environmental conditions in some countries such as India, Pakistan, Turkey and China make it doubly important that the machines are extremely reliable. Omron equipment ranging from CJ1 PLC, NS5 HMI, E2A inductive sensors, E3Z compact sensors, G2R industrial relays, S8VS compact power supplies, G3PB panel-mounted relays, and DeviceNet, more than matched the specification.

expertarea

Ask the expert

Angel Kosters

Product Marketing Manager IPC & HMI, Control Business Unit Omron Europe

What is a Smart Active Part?

A Smart Active Part is a graphical object containing both communication and function logic to perform mainly diagnostic and maintenance functions to Omron devices from the NS HMI. These Smart Active Parts are delivered with the HMI software and can be used throughout your HMI application in minutes without any programming.

Why do you claim the NS is more than a real HMI?

The NS does so much more. An NS terminal behaves like a diagnosis tool and complements the control application – a PC is thus no longer necessary to configure any equipment in the industrial application. By providing diagnosis and maintenance functions on the NS, Omron allows a full insight into the machine's state and the flexibility to quickly troubleshoot on-site with minimum of work for the machine builder, system integrator or end-user. This is all possible with Omron's Smart Platform technology also used by the NS. ■

Smart Active Parts real benefit for the end-user

To increase the user-friendliness of the HMI and to reduce the existing PLC program load, it was decided to migrate to Omron's NS5 HMI. The Smart Active Part feature of the NS5 has been used to process the diagnosis functions in the HMI itself, rather than the PLC. The system we helped build at N. Schlumberger is really unique in its capacities," says Armando Marcelo, Omron's Regional New Business Developer. Eric Mantot, technical manager at N. Schlumberger, continues: "N. Schlumberger had drastic technological constraints, but Omron's Smart Active Parts have turned them into a real benefit for the end-user by allowing this high technology to be easily accessible. Moreover, our existing architecture included third party material, which was a challenge. Omron's wide selection of new technologies has allowed us to build the most innovative machine in the market." All these features make N. Schlumberger's machines more competitive while offering users more profitable production. "We have enhanced the service level without any added costs," says N. Schlumberger's Purchasing Manager, Alfred Simon.

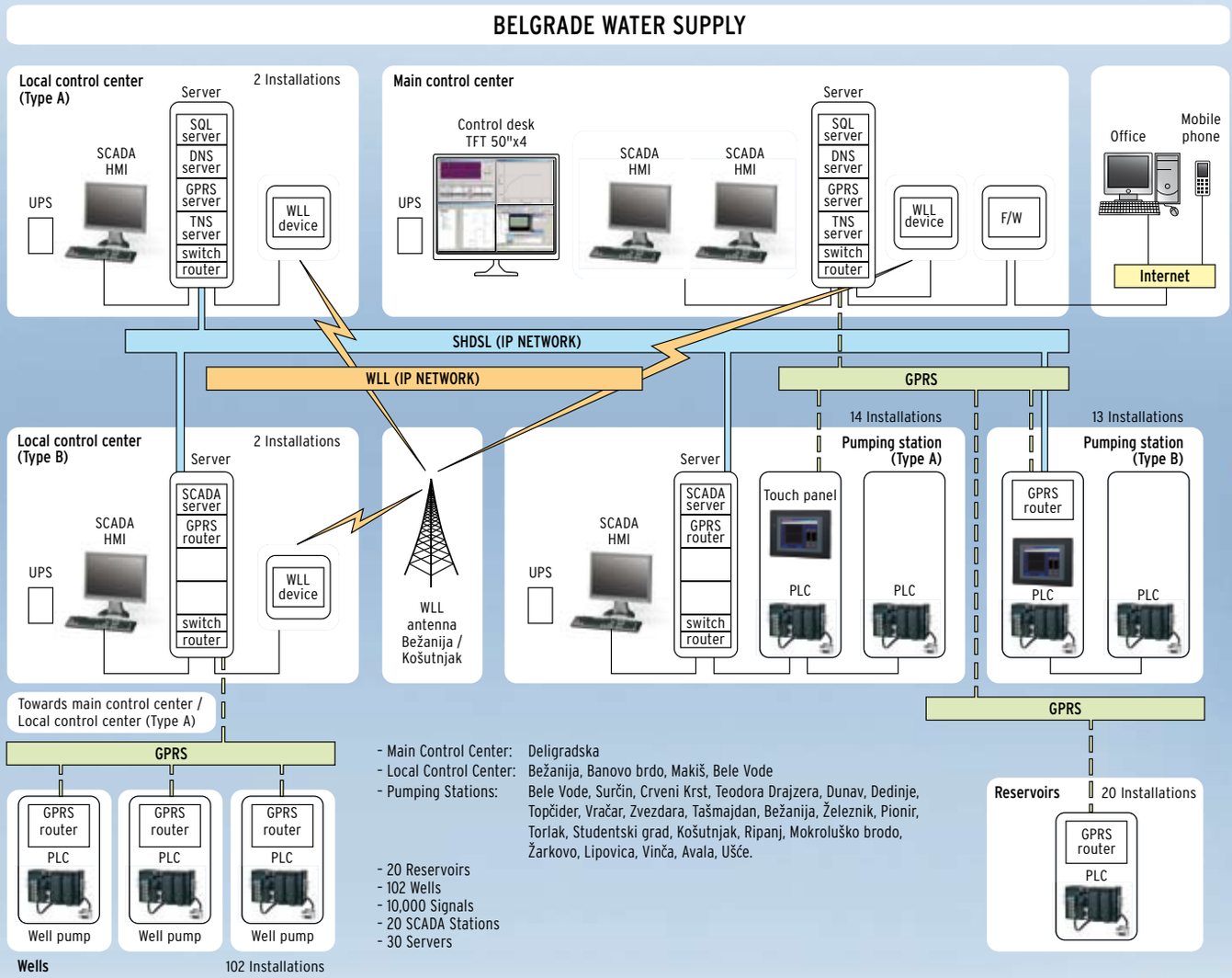
Listen to the customer

Omron supported N. Schlumberger in converting the technical benefits of the new solution into commercial value propositions for its customers by helping them to write crucial arguments for the production and maintenance fields.

"Through teleservicing, all local data from the HMI are now available via Internet: the benefit for our end customers is more than obvious: a better reactivity, a lot of international travelling avoided, and programs corrected and updated remotely on the machines." says Eric Mantot. Our approach has been to build a consistent solution to make the whole application interesting from an economical point of view. Working closely with N. Schlumberger, we have been able to adapt our products to develop a customised solution that is a perfect fit with their application and goals. This has built up a relationship of trust, which has become an asset to both parties. N. Schlumberger has really opened up its machine process to our team and we have been able to help them with their sales strategies." says Olivier Ledey, Omron Factory Automation Product Manager in France. "Our capacity to identify the most competent person for each part of the project and understanding that we had to work on the commercial aspects as well as the technical part, were key to the success of this project," says Armando. "We were able to prove that the added-value we were offering would transform into real benefits for the customer." ■

For a demonstration of Smart Active Parts go to: www.ns.europe.omron.com

By Olivier Ledey, Factory Automation Product Manager for Omron France and Armando Marcelo, Regional New Business Developer for Omron



A city of two million inhabitants, Belgrade is rebuilding and modernizing its infrastructure on an unprecedented scale. A special focus is the city's water supply system, which is far from being modern and efficient. But a new system employing the latest technology will soon be commissioned.

MIKRO KONTROL

Omron supplies a large number of system integrators across Europe. One of them is a company called Mikro Kontrol based in Belgrade, Serbia. Established just over a decade ago, it has become one of the top providers of industrial automation solutions in the region. Thanks to its broad product range, high quality and excellent technical support, Omron equipment supplied to the company can be found in control rooms of the largest Serbian factories in the steel, building materials, coal mining, chemical, public utilities and many other industries.

It was in autumn 2001 when Mikro Kontrol, received the confirmation that funds for the long-discussed Belgrade Waterworks improvement project were approved. The main objective was to reduce the amount of water wasted due to improper control of the pumps and reservoirs. It was estimated that the savings would pay back the initial investment in just a few years.

The proposed monitoring system required modernization of the systems controlling the water supply from the River Sava to the city. This included 102 wells, 28 pumping stations, 20 reservoirs and 5 control centers – all within a 50 km radius. In cooperation with the main contractor, a

Efficient water supply for Belgrade

Japanese company called Ebara, a joint project team came up with the solution, which was based on 96 CJ1 controllers, 24 NS12 touch panels, 30 servers and 20 HMIs connected to each other via Ethernet SHDSL routers, GPRS routers and layer-3 switches. To give an indication of the size of this project, the total hardware weighed 24 tons!

Apart from a large installed base at the various Belgrade Waterworks sites, strong local support and the ability to offer a complete solution were the main reasons for selecting the chosen solution. As sole subcontractor, Mikro Kontrol won contract for the control instrumentation, which amounted to 59 control cabinets and 19 racks of equipment. Together with the engineering works, an estimated 880 man days were required for producing the turnkey solution. The project required Mikro Kontrol to expand its capacity, so in June 2006 they opened a new 500 m² facility in the city of Novi Sad, 80 km north of Belgrade.

"...As sole subcontractor, Mikro Kontrol won contract for the control instrumentation..."

The factory was commissioned on 6th October, and the project sponsor, the Japanese government, was represented at a handing-over ceremony by Japan's ambassador in Serbia, Mr Tadashi Nagai. He was accompanied by a delegation from the Japanese International Cooperation Agency, JICA. Omron was represented at the event by Martin Greslehner, manager of Omron's sales office for Austria and Western Balkans.

In order to achieve better coverage of the Balkan region, JICA has recently announced that its office for the Balkan region will move from Vienna to Belgrade. Mikro Kontrol's general manager, Mr Milanov, said, "My team and I look forward to further cooperation of this kind in the future.
Such excellent cooperation will bring new business opportunities in similar infrastructural projects in the region. With the experience gained from the Belgrade Waterworks project, we have every reason to be enthusiastic about future possibilities." ■

By Mile Milanov, General Manager, Mikro Kontrol

Omron Manufacturing Shanghai Co. Ltd. (OMS) was founded in July 2005 to further strengthen the company's Chinese operations in the field of industrial automation and to reinforce Omron's competitiveness in global markets. Its focus on quality, cost, delivery and service has caught the attention of industry watchers in Japan. We spoke to Mr Yukio Kobayashi, Omron veteran and chairman of OMS, about the achievements.

Successful formula

The Omron factory in Shanghai produces products with highly efficient production methods following the concept of "Sensing&Control", which captures valuable data for improving future products. This, together with cost engineering and the close cooperation between product planning, development and design, results in high-quality products with short lead times and low costs.

Award for competitiveness

Despite the short time span since OMS started up operations, Japan's most prominent economic newspaper, the Nikkei Shimbun, has awarded the plant its most prestigious manufacturing award, the "Nikkei Monozukuri Grand Prize" for global competitiveness. Awarded each year for originality, innovation, efficiency, reaching targets aligned with the corporate strategy, respect for human life and dignity, regional harmony and environmental performance, the prize was presented at a ceremony held in Tokyo on November 27, 2006 attended by Omron's CEO, Hisao Sakuta.

Three types of factory with different roles

Omron has three basic ally different types of factory at its disposal: high-volume, cost-effective production units, such as in Shanghai where OMS has

Omron Manufacturing of Shanghai – the rising star of the East

built production platforms that share core technologies and common manufacturing methods with Japan. Technically oriented factories such as at Kusatsu, Japan, where technologies are combined to develop world-leading products. And, finally, market-oriented factories such as in Germany and the Netherlands, where OEMs benefit from flexible production teams which can fulfill European needs quickly. Those factories are specialised in the customization of products.

Goal to be No.1

Yukio Kobayashi, the chairman of OMS, is clear about what the company stands for and wants to achieve. "Our vision is to be the world's No. 1 in our business area and make a large contribution to Omron's global operations, especially the components business. We will do this by leveraging our core technologies and the strengths of China, such as stable 24-hour production, cost competitiveness and our people's work ethic. We will provide excellent products to our markets and will stay close to them through our GCS (Global Core Stock) facilities."

"...the cost-structure revolution..."

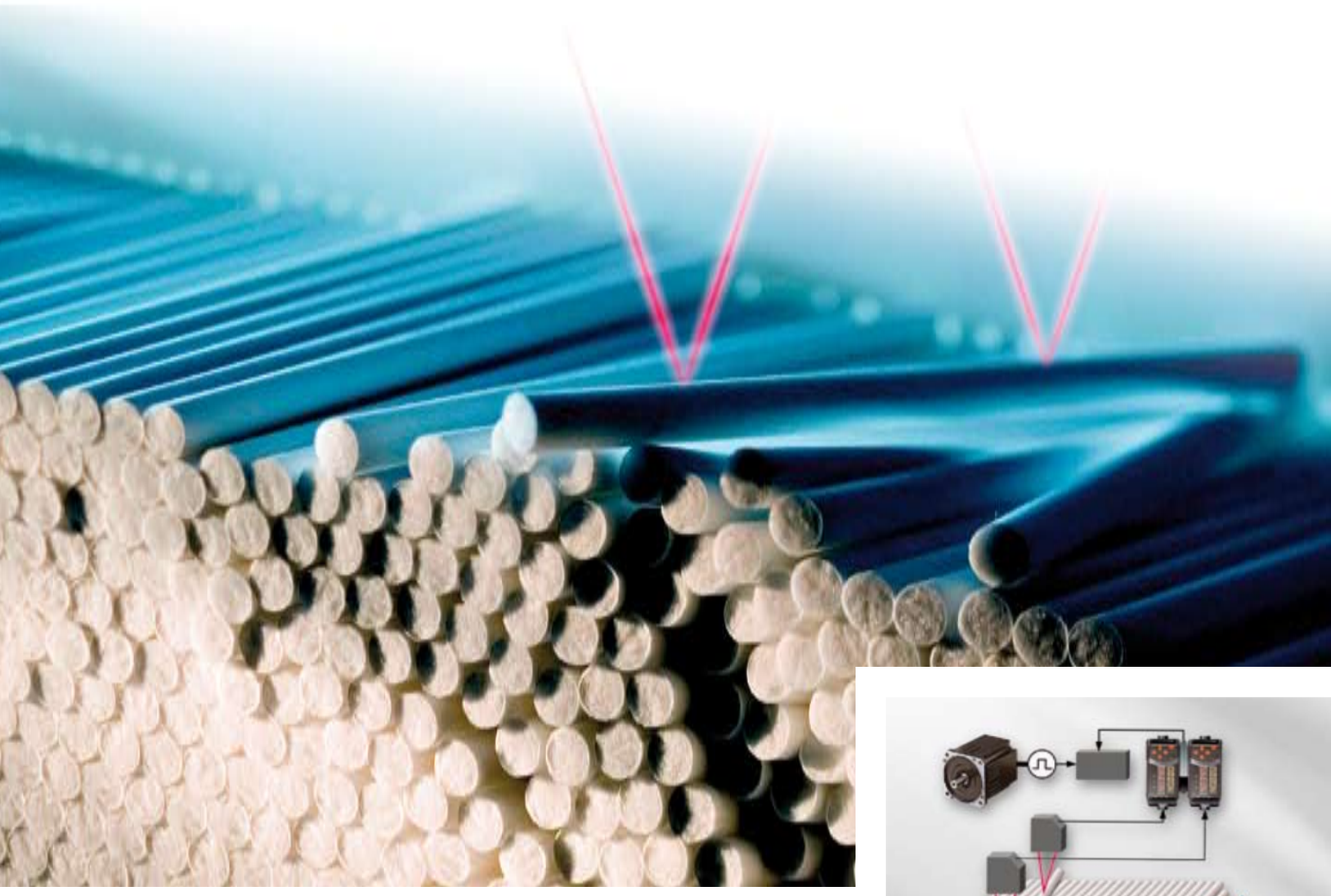
Proud of achievements

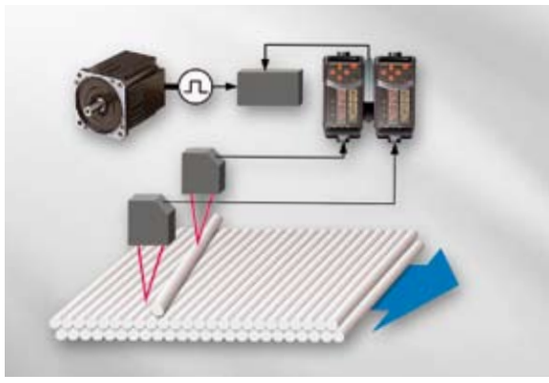
Mr Kobayashi is also proud of what OMS has achieved in such a short time. "Our technology and quality is at the same level as in Japan, and I am particularly proud of our supply-chain management system, our social plan and total capability. There are few companies anywhere in the world with similar facilities to ours. We are making the best use of local human resources and with Omron's skills-development program we enable qualified local people to take over from Japanese to local management at the earliest opportunity."

More similar than different

According to Mr Kobayashi, who participated in Omron's top-management team in Europe, there are no secrets to OMS's success. "I believe there are more similarities than differences between our operations in China and other parts of the world. We have a genuine desire to contribute to society in Europe by contributing to "the cost-structure revolution" within the industrial automation business. And everyone at OMS is willing to work hard towards that goal. ■

Fault detection to optimize processes in tobacco industry





Manual handling allows machine operators to spot filling errors in the tobacco-processing industry. But when automatic solutions are used, sensors are required to perform this function. Hauni, the most successful supplier of machines, technologies and solutions for tobacco processing, filter and cigarette production, together with Omron, has now come up with a solution that is astonishingly simple.

Mission impossible?

Around 4,000 filter or cigarette rods fit into a tray, depending on the diameter. Viewed from above, the rods present a lattice-like honeycomb appearance. The layers are staggered by precisely the radius of one filter, thus resulting in a stable pack that can be handled without the rods falling out. In order to regulate the flow of filters or cigarettes, a COMFLEX unit handles the full trays, which are emptied by turning them upside down. However, problems can occur when filling or emptying. If trays are overfilled, the rods may be damaged, which can have undesirable consequences since the process was developed to process geometrically uniform rods. If, on the other hand, the container is not full, the rods may become jumbled. And if rods in the top layer are not parallel with the others, they can cause blockages in the fill chute. If this occurs, the machine operator has to intervene manually and quickly. Failure to do so will stop the machine.

With today's production speeds of around 16,000 product rods per minute, four tray changes are required, leaving the machine operator only 7.5 seconds to change each tray, which is why automation of the feed and transfer processes is becoming increasingly important. But automation requires robots that are able to recognize the above-mentioned problems. The usual solution is to provide optical-recognition sensors that furnish the entire automated system with the necessary information so that machine operators can sort out problem trays manually. But paper rip-off can obscure optical sensors.

Ingenious solution with ZX sensors solution

Instead of sophisticated (and expensive) camera systems, the solution employs two readily available laser probes (ZX-LDA41 with ZX- LD100L) attached to the robot's arm. These scan the clearance of the uppermost layer of filter rods while the robot's arm grasps the tray. The scanned area is so wide that it takes in the entire height of the tray.

A simple processor (ZX-CAL) subtracts the clearances measured by the two sensors from each other. If the rods are lying correctly, the clearance signals should be exactly the same and the processor should register 0, meaning everything is okay. A rod that isn't perfectly parallel, however, will cause asymmetrical signals. The first sensor's signal starts metering the number of motor impulses that occur when the robot's arm transports the tray, while the second sensor's signal stops this procedure. The number of pulses indicates the disorderliness of the top tray. If a certain value is reached, the tray is earmarked for further processing. The clearance signal also serves to monitor how full the trays are, thus making it possible to monitor even empty trays.

A further solution (F160) in the HCF tray filter identifies areas (nests) in trays where the uniform, honeycombed structure is interrupted, while an additional sensor (E3C) on the robot's arm detects product rods that are either bent or stick out of the container and could lead to a blockage or spoil the parallel arrangement. ■

Colophon & Contact

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