

TURNING COMPLEX

TEMPERATURE CONTROL

INTO EASY-TO-USE SOLUTIONS

SMART PLATFORM

PERFECT FOR SCALABLE AND FLEXIBLE MACHINE AUTOMATION

COVER STORY

- ◆ Turning complex temperature control into easy-to-use solutions
- ◆ Getting the heat control just right in Repak's high-tech packaging systems
- ◆ Smart Platform - perfect for scalable and flexible machine automation

NEW PRODUCTS

- ◆ E5CN series - the best temperature controllers around
- ◆ CJ1 Screwless I/O Units - the reliable connection
- ◆ Σ Linear - when speed really matters
- ◆ Z300/Z500 Series - high-precision, CCD-based laser displacement sensor systems

APPLICATIONS

- ◆ Valmet Automotive uses Omron's automation expertise to produce one of the most famous cars in the world
- ◆ B auerle - envelope-filling system does 18,000 insertions/hr with Omron's technology inside

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Editorial



Bryan Davies,

Manager of the Industrial Components Division
Omron Europe

Man has been trying to control temperature since the dawn of time, so why have we chosen temperature as the theme for a "technology & trends" magazine?... "What's new about this?" you might well ask. Well, temperature is quite simply the most controlled variable in the world, and Omron is the largest supplier of temperature controllers to do this.

In this magazine we will share with you some of the trends we envisage. Through our cover story and a practical example of a packaging machine, we will attempt to show how Omron approaches the integration of its temperature controllers, PLCs and human-machine interfaces (HMIs) to meet a customer's requirements.

The field of temperature control encompasses an enormous range of processes that differ dramatically in their characteristics and requirements, both in terms of accuracy and performance. This breadth of demand is a never-ending challenge to designers and engineers to both develop and apply new technologies. The criterion for optimum performance varies from one user to another; for some it is the time taken to reach a stable tempera-

ture. For others, it is the absolute accuracy to which a temperature is controlled or the handling of sudden changes in process conditions. Massive developments in temperature control technology are being achieved each year, fuelled by customers' dreams of better and more automatic management of their process requirements.

It is this desire for simplicity of use and improved performance, coupled with the continual demand for smaller and smaller packaging, that has led the trend towards innovations in the embedding of advanced control techniques behind a simple facade that is the theme of our magazine today.

It is in precisely this area that Omron has pioneered massive breakthroughs in applying complex technologies to provide easy-to-use solutions and therefore lead the world in the supply of seemingly humble but deceptively advanced temperature control products.

That brings me nicely to an even more exciting subject that is introduced in this magazine: Omron's Smart Platform. Inspired by the need for simplicity and flexibility of connectivity, Omron's Smart Platform is a uniquely useable and automatic link between all of Omron's control products, enabling users to mix and match their preferred Omron product solution without the need to worry about hierarchy, parameter adjusting or other communication issues.

Omron knows that any automated system can never be considered a "once and for all" solution, and that flexibility is paramount. We are as innovative here as you would expect us to be in our quest to make complex solutions ever easier to use. Integration is as easy as saying the word "Omron"!

Turning complex temperature control into easy-to-use solutions



Wide field of vision angle - visibility from all angles

Bright place or dark place - it is easy to see

For many years the trend in the temperature control market has been to offer more functionality in simpler packages. This has put pressure on manufacturers to develop technology in products that are easier to operate and are more informative. The result is that today, machine builders and OEMs can choose temperature controllers with levels of functionality ranging from basic control to units with advanced strategies that master any control application.

Integrating technologies into compact designs

Omron is the world's largest supplier of temperature control products, so not surprisingly the company is a leading player when it comes to integrating intelligent functionality into increasingly smaller units. This is most visible with Omron's E5GN temperature controller, which was the world's first 1/32 DIN unit to incorporate displays of both set values and process values at the same time.

Display Technology

The demand for increased visibility of smaller displays has led to the introduction of backlit Transmissive LCD technology, which is now also available with colour change. This tech-

nology makes displays sharp and easy to read from many angles, as well as in difficult lighting situations.

In-panel solutions

In recent years, moves towards a preference for multiple controllers to be contained inside a control panel have produced a host of new 'in-panel' designs. The reasons behind the popularity of these controllers are clear; they save space by using a shared or remote display philosophy and offer ease-of-use benefits that the market has been asking for through integration with other elements of a system. Omron's contribution to this trend is the development of the E5ZN controller range,

which offers a narrow in-panel solution. Two loops are contained in each standard 22.5mm wide unit and up to 16 units (32 loops) can be connected together. The unit is mounted onto the DIN rail using a side-to-side connecting socket system. The E5ZN uses an internal bus system for the communications and power supply, which dramatically reduces the wiring required and installation time. Another advantage offered by the range is the two communication ports through the master socket; one for connecting to the E5ZN-SDL setting and display unit, the other for connecting to external networks and components with a baud rate up to 38,400bps. This gives the versatility of both local and or remote monitoring and

Colophon

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Omron Trends

Face sensing technology "OKAO Vision"

Visual information plays a significant role in face-to-face communication. Clearly, communication between people and machines would be more comfortable if a machine could understand people visually in much the same way as people do.

"OKAO Vision", which stands for face vision in Japanese, is the collection of Omron's edge-cutting technologies in this area. By visually sensing and extracting useful information from face images, Omron aims to provide various kinds of services optimised for each individual. These services will match their interfaces and contents to user's capabilities, preferences, condition, attributes, and applicability.

„OKAO Vision“ is composed mainly of the following technologies:

Face detection

Localising multiple faces in target images quickly and accurately.

Facial features extraction

Extracting feature position (e.g. eyebrow, eye, nose, mouth and face contour) in target face exactly.

Face recognition

Recognising a person by comparing his/her face with faces registered in database.

Facial attributes estimation

Estimating attributes of people such as gender, age and ethnicity with facial image.

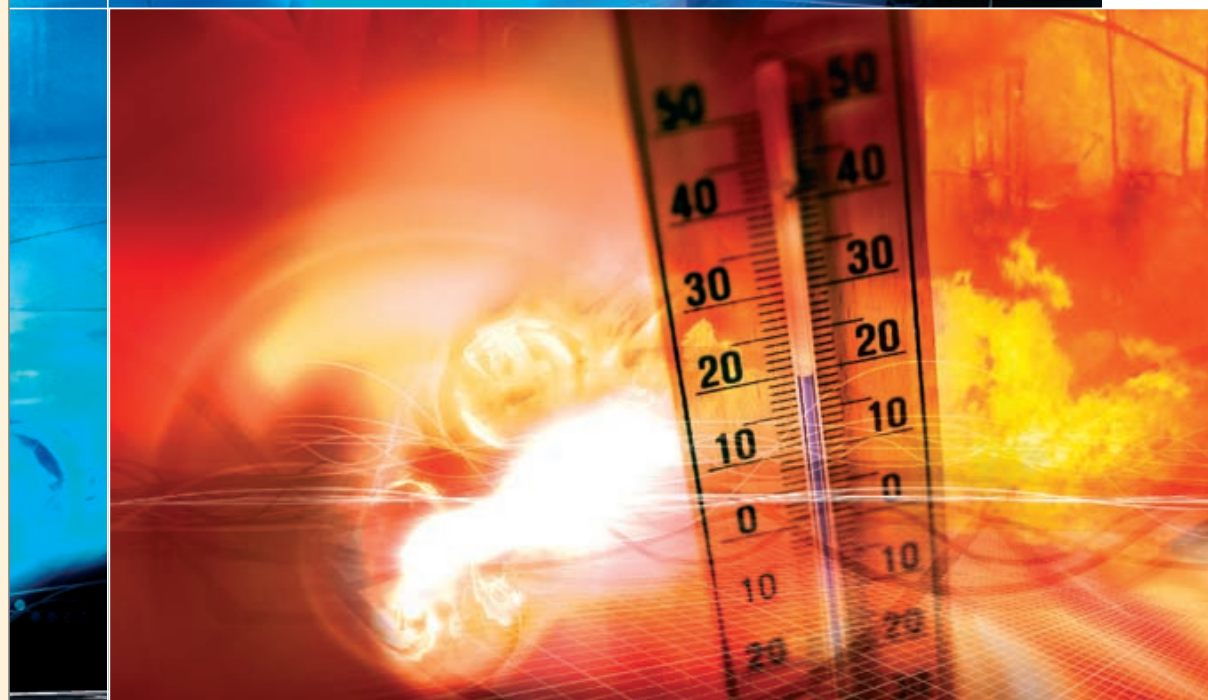
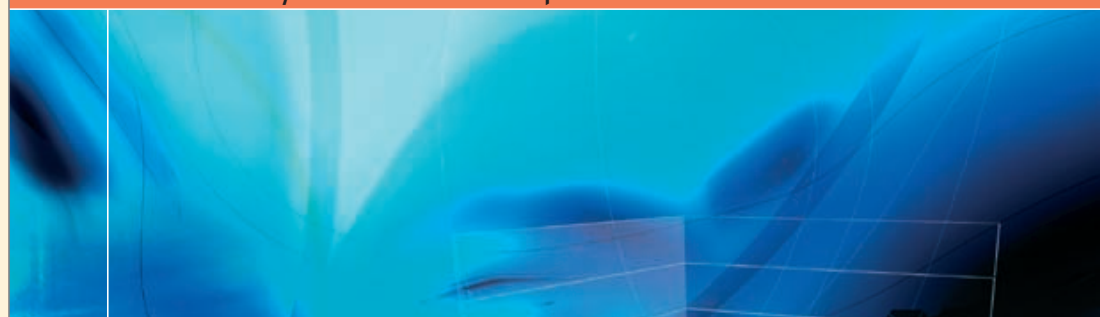
Automatic optimum facial picture adjustment

Adjusting the skin colour of face images automatically to look more beautiful easily.

http://www.omron.com/r_d/index.html



Face certification embedded technology for mobile phone with camera.



configuring of all the required loops (up to 32 max.) through one 1/16 DIN unit, by using Omron's windows-based ThermoTools software package or other customer packages. To give you an overview of the system it is possible to have a direct communications link with an Omron HMI using a standard serial connection or through DeviceNet. With DeviceNet you can use the same configurator used to program your PLC master. What separates Omron's temperature controllers from most competitors products is a high degree of communication integrity. If communications are

lost, the Omron controller will continue with the most recent set of control values and the link self-heals once the communication is re-established.

Optimising to application requirements

Many of temperature controllers are supported by configuration or supervisory software, and/or allows a selected unit to be configured and or monitored. Omron's addition to this trend is its Configuration Software ThermoTools which incorporates a unique fine-tuning system where the user can define the action of

the controller against three criteria; speed of response to disturbance, overshoot suppression, and stability at set point. The user can select his preferred criteria. This feature has been developed by Omron, based on many years experience of being the largest supplier of temperature and process controllers in the world. The benefits to end-users include faster start-up production times, and much more specific temperature control during production, which of course leads to better quality products.

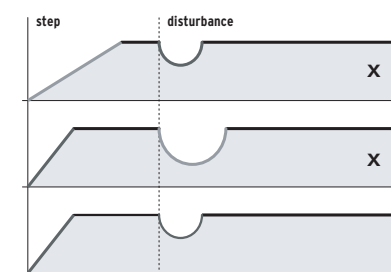
Bringing plant information to a higher level

As not all applications require the temperature controllers to be located in one place but in key positions throughout the machine, Omron has introduced the multiple options of networking modules for connection into either serial, DeviceNet or Profibus systems. Omron uses FINS (Factory Intelligence Network System) technology, which allows the user to send the same message over any network that Omron supports. This enables much wider system analysis and configuration. Omron has also written and implemented protocol macros (for PLC) and SMART Active Parts (for HMI) not just for temperature controllers but for many other devices, which enables them to be easily programmed and controlled by an operator. And since Omron's SMART Active Parts contain much maintenance information, troubleshooting by the operator has been made easier, or can even be avoided. This technology not only raises the plant information level available to the operator, it also makes the automation control process that much easier.

All about control – the benefits of 2-PID

Each Omron temperature controller features 2-PID control, a complex technology that uses a powerful algorithm developed by our

designers. This unique feature enables the controller to be automatically tuned to give a good disturbance response, and to independently set the reaction speed to changes in the set point using a simple tuning parameter (see graph below). What's even better is that the user doesn't have to take any special action; the controller's built-in technology does all the work. Omron's temperature controllers are factory preset with a default value that is suitable to give responses with minimal overshoot for most heating applications. The benefits include faster start-up production times, and much more stable temperature control during production, which will lead to better quality products.

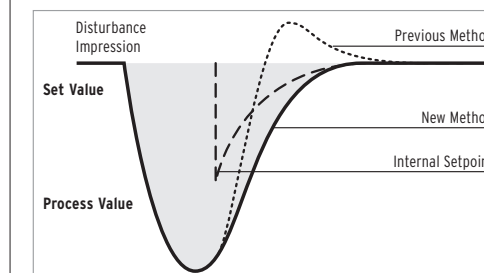


2-PID is incorporated in every Omron temperature controller. Customers only have to switch the controller on, use AT or ST and they have the best control in the world!

Disturbance control

Many companies talk about overshoot reduction after a disturbance. Only Omron however has the technology to control the PV overshoot. Take the E5CN model for example: when an external disturbance signal created by a sensor detecting a new product comes into the machine, the E5CN can even reduce the overshoot that can't be handled by the 2-PID system alone! Another model – the E5R – has an advanced system where it infers the distur-

bance automatically without the need for an additional sensor and takes the appropriate action, thanks to its rapid input sampling and output setting (50ms).



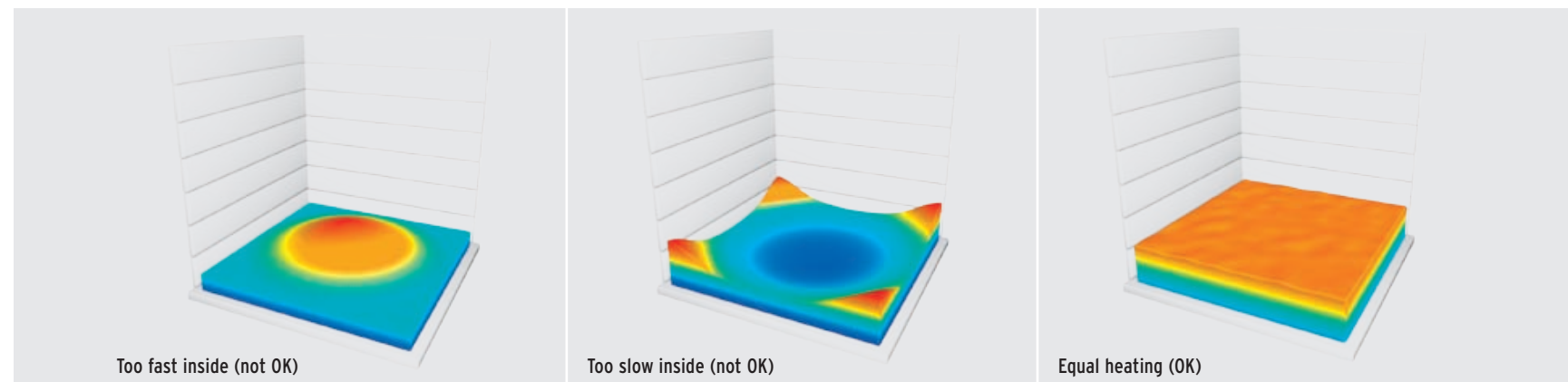
Gradient Temperature Control (GTC)

Omron continues to develop technologies that will enable its controller range to offer easy-to-use solutions. A new feature, called Gradient Temperature Control (GTC), has been successfully laboratory tested and integrated into a customised product. This patented and award-winning Loop Interacting PID control technology ensures that the temperature profile stays constant over a defined area, thus removing the damaging effect of hot spots on sheets of materials such as metal or plastic or wafers, and will be made available for general release soon. As the Omron controller is in complete control of the gradient, it is possible to control the exact shape of the temperature profile at any time over any size sheet, provided that there are sufficient heating zones and sensors in position.

All of these technological innovations reinforce Omron's commitment to developing new and easier ways of achieving better control of industrial temperature control applications. They also give an insight into why Omron has been, and continues to be, the world's largest and best temperature control supplier.

Gradient Temperature Control (GTC)

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Omron Trends

Stereo vision sensing technology "Silhouette Vision"

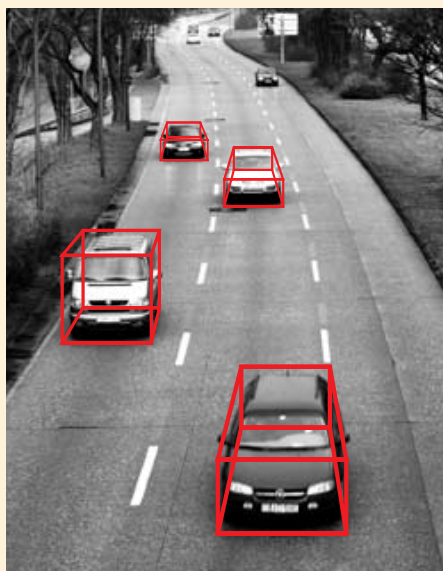
With the rapid expansion of a broad range of diverse systems, there is a growing tendency towards a role of the sensor as a means to obtain information. Image sensors especially, which can quickly capture a large variety of information across a wide measurement area, have lately attracted considerable attention.

However, as conventional image processing technologies are based on the changes of grey scale, they confront some difficulty when attempting to distinguish overlapping objects in pixel image data. Their performance also declines against shadows cast by sunlight and low contrast period at dawn/dusk, which are typical situations for outdoor systems.

In order to resolve these problems, Omron has developed and is now applying a technology we call "Silhouette Vision" as our proprietary approach to image processing of these kinds of problems. This technology uses two cameras to capture a stereo image, extracts characteristic points of an object from the image, and detects the object three-dimensionally in a scene.

Moreover, we have developed various related technologies, such as a camera control for stereo cameras, calibration techniques, model building algorithms using a 3-D recognition pursuit of the moving object, and outdoor environment resistance. Frequent field evaluation tests are revealing a level of detection accuracy never seen before.

http://www.omron.com/r_d/index.html



Getting the heat control just right in Repak's high-tech packaging systems



Omron's E5CN temperature controllers are used in Repak's machine control panels to control the heating.

Founded in 1985 and situated in Emmen in the north of The Netherlands, Repak is a dynamic company that specialises in the production of high-tech packaging systems. With a highly trained and motivated workforce of 80 people, the company can produce a complete packaging solution for a customer in just 5 working days, and a tailor-made one in just 11 days.

Repak builds packaging systems both for the food and non-food trade, and its customers are mainly from the retail and industrial segments. According to Mr. Coos van Dorsten, the company's Sales Director, "Repak is a goal-oriented organisation. We strive to be flexible, level-headed, creative and direct. Our company structure is flat and organised to ensure our speed, flexibility, reliability and quality is guaranteed".

Repak uses a variety of Omron's products in the control section of its packaging machines, the main Omron control components being temperature controllers, as heat control is very important to the overall packaging process.

"Our machines and Omron's temperature controllers have a lot in common" says Mr. van Dorsten. "Both have a lot of technology hidden within the product. The customers may not know what's really inside; they simply plug it in, switch it on and it works. What's important for everyone is that it stays working!"

The solution provider

Choosing Omron as a supplier was easy for Repak, according to Mr. van Dorsten. "We develop a superior packaging solution based on high quality. Our machines are designed for 24-hour production. Omron control systems are very well known, especially in the U.S., a market region in which we have a growing presence. What really impressed us with Omron however was that, when we first approached them with a problem concerning one of our drives systems, they had a solution within a day! Their service response continues to be very fast and reliable".

All under Omron control

Omron's E5CN temperature controllers are used in Repak's machine control panels to control the heating. The number of temperature controllers varies from machine to machine, depending on customer specifications and applications. The control panel also houses a range of Omron PLCs, inverters, power supplies, SSRs and relays. Controlling the operating parameters is carried out via an Omron HMI.

Easy to program

"Working with Omron's products makes life so much easier for us", says Mr. Jan Bazuin, Repak's System Design Manager. "Quick interfacing with all parts of the system is easy because – and that's a strong point of Omron – I can use protocol macros already written by Omron (SMART Active Parts) so this allows me to address and program or control each temperature controller via the Omron HMI. Programming really couldn't be easier!"

Raising information levels

The combination of Omron's software and the components themselves with SMART Active Parts macros inside raises the Plant Information Level available to the end-user or operator. "The E5CN is just one of the many Omron products that can be programmed and controlled by an operator using an Omron HMI", according to Mr. Bazuin. "In the future we hope to provide wireless control, so that system data and control is available on a laptop from anywhere in the factory."



The combination of Omron's software and the components themselves with SMART Active Parts macros inside raises the Plant Information Level available to the end-user or operator.

"Installing the E5CN is easy", continues Mr. Bazuin, "and building in an extra temperature controller or changing an existing one can be quickly done without using any wires. It's just a matter of drawing out the unit and replacing it. This means that the customer only needs to have one spare in stock".

Auto-tuning for stability

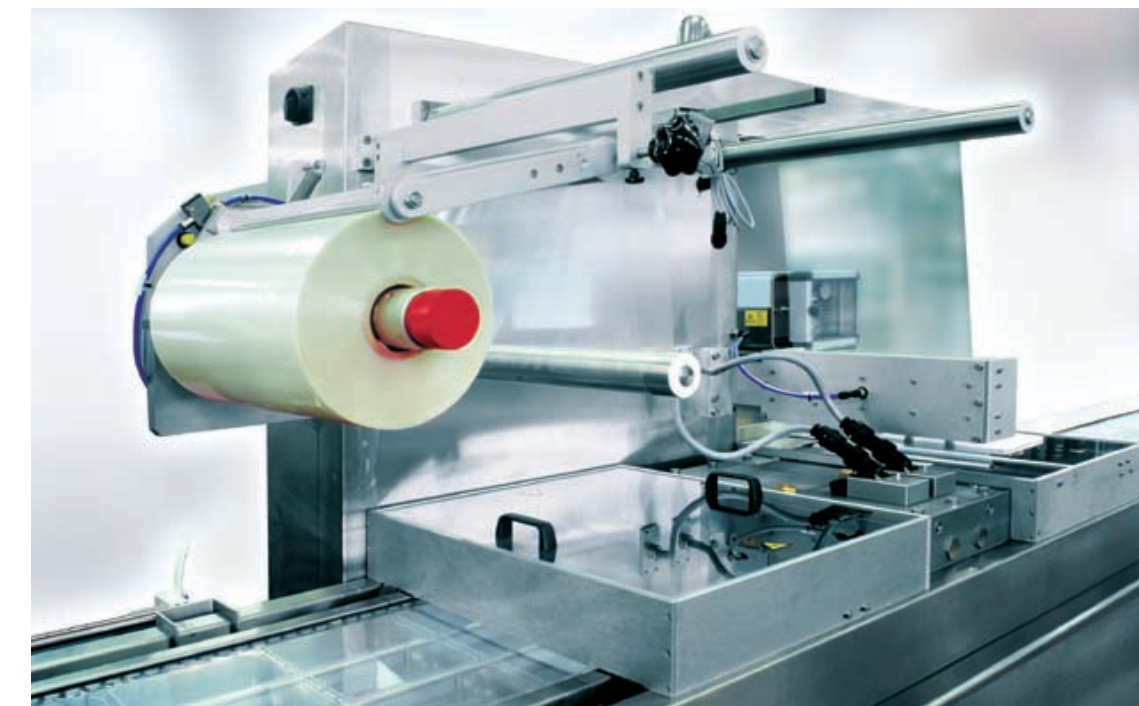
Tuning the temperature controller is another easy operation, thanks to the auto-tuning feature. "This allows you to check how fast the heater plate is reacting" says Mr. Bazuin. "It makes the temperature in the heater plate much more stable. This is especially important for ensuring that the packaging is properly sealed, especially in food packaging applications. Thanks to Omron's E5CNs we are within 1° of stability because of this auto-tuning feature. The E5CN's 2-PID control is another superb feature. When a heater plate is cold at start up, you normally get overshoot. With the

2-PID feature the rate of rise of temperature is smooth and linear and offers a good set point response".

A global service

Repak produces its packaging machines in the Netherlands and ships worldwide. The machines are built from the ground up, and are designed to be as flexible as possible for customers who need to be able to switch the production of packaging sizes quickly and efficiently. The company already has agencies in America, Canada, Mexico, Scandinavia and China. "Our philosophy is to be the best, not necessarily the biggest" says Mr. van Dorsten. "Numbers are not the most important thing to us. We focus on the customer with the goal of having a long-term relationship. This also ties in with Omron's philosophy. When we become a truly global company, it's nice to know that we will be able to rely on Omron's products and services anywhere in the world!"

Repak's high-tech packaging systems - designed for 24-hour production



E5CN series - the best temperature controllers around



Omron is the biggest global supplier of temperature controllers. The company has always been at the leading edge of technological innovations. Just five years ago Omron was able to give its customers one of the brightest displays available, based on state-of-the-art back-lit LCD technology. Two years ago the company was the first to introduce a display that could also change the Process Value (PV) colour.

The first temperature controller to offer this high-clarity, dual-colour back-lit LCD display with colour change technology in a 1/16 DIN format was the E5CN. Now Omron has brought this world's best-selling controller to the next level by improving the clarity and definition with a three-colour PV display.

Improved display

The E5CN display shows not only the process value in large, 11mm digits, it also has a tri-colour back-lit matrix that gives red, green and orange. These colours can be configured to occur on events such as an alarm condition or out-of-band warning. They can also be fixed to give easy separation of loops or processes. This gives the operator the clearest indication of process status, even from some distance away.

Excellent control performance

The new E5CN can be automatically tuned to give the maximum control performance, and thanks to Omron's unique 2-PID control, this applies to both approach-to-set value and response-to-disturbance (see related article "Turning complex technologies into easy-to-use solutions"). The benefits of this over normal PID include faster start-up times and improved response, which means that the quality of the end product can be maintained in changing circumstances. Best of all, the user doesn't have to take any special action;

the controller's built-in technology does all the work! Each model in the E5CN series can have an external input, such as a sensor or PLC signal, to detect the introduction of material to the process. This allows the temperature controller to anticipate the disturbance, and act as required.

High-level machine protection

The new E5CN controllers include innovative features, many of which have been developed based on customer feedback around the world. This includes the unique 3-phase heater monitor, which checks for failures in elements configured to a 3-phase supply. The Solid-State Relay (SSR) short-circuit monitor has been developed on request for an immediate indication of failure, as this can have very damaging results. In some applications an expected alarm condition may occur during start-up or part way through a process. This is classed as a nuisance alarm, and to help the operator recognise one the new E5CN contains a timer option so the alarm will only become active if the condition persists after a settable time.

Increased connectivity

The E5CN's Modbus and Compway/F protocol feature is software configurable to increase the connection possibilities. This simplifies integration of the E5CN into existing systems, and with high-speed serial communications

up to 38,400 bps, gives faster update opportunities. Omron has also written SMART Active Parts, which are simple program modules that can be used in conjunction with Omron PLCs and HMIs to provide simple configuring, setting and monitoring of the connected controllers.

Application possibilities

The front panel of the E5CN is sealed to IP66, making it suitable for applications where frequent wash-downs are performed, such as in the food industry. Its flat membrane keys make the E5CN highly suitable for use in the food, beverage and pharmaceutical industries. For simple oven and heat treatment applications that require basic timing, a simple 2-stage recipe has been included to give a single ramp and soak. At the end of the process the user can choose to continue with the final set-point, or end and cool to room temperature with a local auxiliary contact to indicate that the process has been finished. To prevent unauthorised tampering, the new E5CN has additional security functions such as a user-settable password entry and parameter masking. This gives the operator access only to those parameters that the customer believes are required. The modular structure of the E5CN makes it possible to easily add communications, heater alarms, event inputs and extra outputs at a later stage, without the need to re-invest in a new instrument.

Buffer Unit S8T-DCBU-02 - for power management control



The S8T-DCBU-02 is a buffer block that is designed to prevent interruptions in equipment operation, loss of data or other problems resulting from a momentary power loss. It does this by providing a back-up power source as well as a shut-down time off process for at least 500ms (at 2.5A) to 1s (at 1A) in the event of a glitch or transient interruptions in the power supply.

The S8T-DCBU-02 can be used with all of Omron's power supplies, and is one of the most cost-efficient ways of ensuring the supply of power in industrial automation systems. Up to four such buffer blocks can be connected in parallel to increase the back-up time and current handling capacity.

The S8T-DCBU-02 operates by using built-in capacitors that act as a temporary power source during a power failure. In addition, the capacitors cause the energy to be artificially boosted to deliver more power and provide a longer back-up time than can be expected from a standard back-up system. When the

power supply recovers, these capacitors start recharging. Built-in over-current and over-voltage protection circuits in the buffer block protect equipment against damage caused by shorts and overloads. The over-current protection circuit activates when an over-current is detected, and reduces the output voltage.

K3HB series - Omron's new panel indicators

Omron has developed an innovative new range of analogue input panel indicators built on state-of-the-art technology to set new benchmark standards in functionality and visibility. In particular, in the development of the 1/8 DIN K3HB range, Omron has focused on making the indicators simple to read, even at a distance, and to make interpreting those readings as intuitive as possible.



The K3HB indicators provide a bar-graph position indication, which is a unique feature in 1/8 DIN horizontal housing panel indicators. The sampling speed of this new range has been increased to 50 times per second, or 2,000 times per second for the linear sensor indicator version. Furthermore, users can also specify DeviceNet communications, with the option of a DeviceNet output module delivering

high-speed data communication with PLCs, without the need for special programming.

The full range of K3HB analogue input panel indicators includes a process indicator (K3HB-X), a temperature indicator (K3HB-H), a weighing indicator (K3HB-V) and a linear sensor indicator (K3HB-S). These indicators will provide convenient, high performance solutions in a

broad spectrum of applications in the process industry, as well as in machinery applications in areas such as binding, soldering, semiconductor manufacture, moulding and mixing machines.

The K3HB indicators are designed in a modular fashion, which enables users to select exactly the functionality they require.

Omron Trends

Omron has developed technology for creating brighter, clearer mobile phone liquid crystal display screens

Omron Corporation has developed the world's first* frontlight manufacturing technology capable of making brighter, clearer liquid crystal display screens while reducing power consumption for mobile phones, PDA's and other mobile information terminals.

This frontlight manufacturing technique, which applies nanotechnology, achieves a three-fold improvement in contrast ratio compared to frontlights manufactured by other companies and screen brightness rivaling that of a notebook computer (100cd/m²) through highly efficient light control.

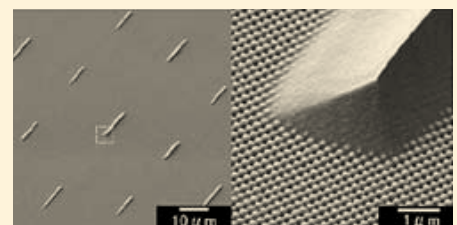
Conventional frontlight methods have featured low power consumption but with low contrast (blurred picture), while backlight methods have featured high contrast (sharp images) but with high power consumption.

By proprietarily developing the world's first hybrid integration technology combining a nano prism array with a micro prism array into a frontlight, low power consumption and a bright, clear liquid crystal display screen are both possible.

With the spread of camera equipped mobile phones and video image transmission, market demand for brighter, clearer mobile phone as well as PDA liquid crystal display screens has grown considerably. The mobile phone is no longer used only as a phone but as an information terminal and a mechanism for reducing energy consumption, a necessity in the face of a growing trend towards screen energy consumption. Omron developed this new frontlight manufacturing technology as a solution to these two needs.

* According to in-company research

www.omron.com



Omron succeeded in developing the world's first hybrid integrated technology that fuses micro prism arrays with nano prism arrays.

Smart Platform - perfect for scalable and flexible machine automation



Faouzi Grebici, Manager of the Automation Business Unit Omron Europe, introduces Omron's new Smart Platform concept.



2003 was a good year for Omron, with the industrial automation business hitting a new record in growth. As ever Omron has shown its resilience by defying the general economic downturn. The company's European business, which accounts for over 30% of its total, has also contributed well towards this growth. Most of this success comes from the motion control business and smart sensors.

Fuelled by the joint venture with Yaskawa, Omron's motion control business has gained wide market acceptance and much more credibility from lead customers. Omron Yaskawa Motion Control B.V. can proudly claim overall leadership in inverters and servos in the OEM market. Omron is also regaining its lead in sensors thanks to the new smart sensor line, which is already setting standards in precision laser, fibre and inductive sensing.

Smart Platform

2004 has all the ingredients of being a special year for Omron. The launch of Smart Platform, Omron's new fully integrated automation architecture, will certainly reinforce the company's image as one of the most innovative players in the market. Designed to make machine automation easy, the Smart Platform is a uniquely useable and automatic link between all of Omron's control products. It enables users to mix and match their preferred Omron solutions without the need to worry about hierarchy or other communication issues. Driven by the need to make con-

nectivity as simple and flexible as possible, Omron's Smart Platform creates a harmonious combination of sensing, control, motion and regulation devices.

The Smart Platform concept is built around three major items:

- One software environment
- Transparent architecture
- Plug & Work

One software environment

This single programming and configuration environment is an integrated software management tool called CX-One that enables the user to build, configure and program all Omron networks, PLCs, HMIs, motion control systems, drives, temperature controllers and sensors. For more details see description on this page.

Transparent architecture

The transparent architecture is due to devices in the machine that are capable to communicate via an Omron universal communication protocol. Regardless of their complexity and the type of field network used, these devices

can access and be accessed through a single point (SPMA). This makes preventive maintenance and remote servicing very easy.

Plug & Work

'Plug & Work' functionality is achievable through Omron's function block library, device profiles and SMART Active Parts, which can be simply 'drag & drop'-configured in contrast to conventional programming. The SMART Active Parts are pre-defined e-objects of field devices (e.g. inverters, sensors, temperature controllers etc.) that can be dragged and dropped in the HMI screen. This allows direct monitoring of the machine from the HMI with an absolute minimum of programming.

Sensing, control, motion and regulation mini-platforms operate perfectly within a totally integrated Omron system, and they can interface just as easily to a 3rd party automation platform since they support all popular field-buses. The CX-One will be developed further using the open FDT-DTM architecture to further support 3rd party devices.



CX-One - one software for your system

As users demand more flexible and scalable production, the machines are becoming more complex. The benefits of flexibility and scalability are often offset by problems of configuration, programming and maintenance. Omron's solution is to provide one software for your automation system - from sensing to motion control and for configuration through to maintenance!

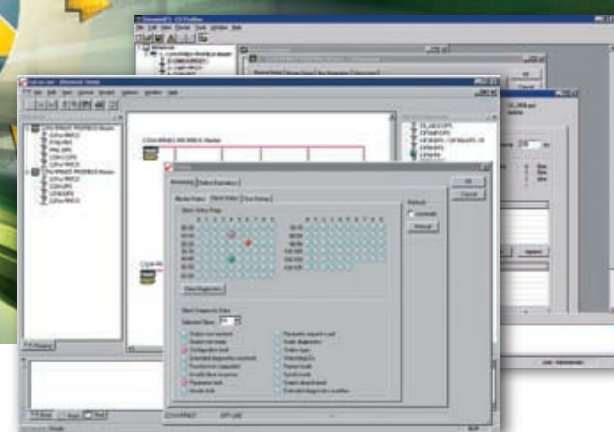
CX-One software is the one software needed for configuration programming & maintenance of all Omron environments - regardless if you use products from Omron's range of Sensor, Regulation, Control or Motion Platforms.

This is possible through the use, on all platforms, of a common Universal Protocol that also offers transparent messaging across networks.

The transparent architecture works with Omron's other intelligent components such as DRT2 DeviceNet slaves to allow maintenance information to be automatically sent from the intelligent slaves to CX-One without any programming!

This allows truly flexible and scalable machines to be configured and programmed under a consistent environment - from the sensing to the motion control and information.

CX-Profibus - the latest configuration technology



Today's fieldbus configuration tools have evolved to support a wide range of functions that include engineering, commissioning, operation, diagnostics and maintenance. Omron's PROFIBUS solution uses FDT/DTM (Field Device Tool & Device Type Manager) open technology to solve these tasks.

The FDT/DTM open technology enables control system manufacturers to provide customers with an optimised display of all functions and data.

FDT is a frame application that provides a standard communication interface between software components that support the field devices and systems. These DTMs can be used in all configuration tools that

follow the FDT specification. The DTM is the management component for a field device or system. Omron's CX-Profibus configuration package is a FDT frame application that includes all DTMs for Omron PROFIBUS masters and slaves. DTMs of other vendors' devices can be added. In addition, a Generic slave DTM for field devices that only provide a GSD-file for configuration is available.

CJ1 Screwless I/O Units - the reliable connection



Screwless clamp technology drastically reduces wiring time, eliminates routine maintenance, and ensures a very reliable connection. That's why Omron now introduces a new range of screwless I/O units for the CJ1 PLC series.

Versatile and reliable
Omron's screwless I/O terminals accept a wide range of wires, solid or stranded, with or without ferrules, from 0.08 to 1.5 mm². The common power supply terminals even accept two wires each, for easier power distribution.

During testing and commissioning, the spring clamps can be contacted to verify the signal levels. Yet the terminal is always safe to touch, whether wires are inserted or not.

Because the spring-loaded clamps secure the wires in their sockets, the wiring will not come loose through shock or vibration. This eliminates the routine task of re-tightening screws during regular inspection.

Easy to use
Individual wires are easy to attach and detach from the terminal block, simply by inserting a screwdriver in the release hole. Traditional screw terminals must be tightened at the cor-

rect torque; with Omron's screwless I/O, the contact pressure is always right. A special insert in our clamping spring protects it from being overstressed, making sure the spring always stays in shape.

The new screwless I/O terminal is interchangeable with existing connectors, and can be used on any existing CJ1 unit that uses the classic 18-point screw terminal block. And they are just as convenient to attach or detach; no tools required!

Omron's CAN unit for the CJ1 - how flexible CAN you be?



Throughout the world, millions of CAN-controllers are sold yearly. Actually only a very small number of them are used in devices that follow a standardised industrial communication protocol like DeviceNet or CANopen. Most CAN chips sold in the world are used in proprietary, embedded applications, using a protocol developed by the user.

Such a device includes the core competence of an OEM. But many of these OEMs, or their customers, would like to establish a seamless control architecture to combine the proprietary solution and know-how with a standard PLC control. Omron enables this via the CJ1W-CORT21. The unit handles any customised CAN protocol.

The unit is capable of sending and receiving any 11- or 29-bit CAN-message. Sending is done on change, time-based or on request. Receiving data is done by setting a filter for the required identifier.

With this new unit customers have a gateway from their proprietary hardware and network

to a well-defined platform. It makes it easy to integrate the two different worlds to one seamless solution.

Application examples include control on trucks and busses where J1939 is the standard protocol, as well as agricultural vehicles and ships.

A complete machine management tool in just 5.7 inches

Even though its colour screen is just 5.7", Omron's NS5 terminal can offer the same high quality and same feature-packed functionality as the other models in the successful NS series! The screen's 320x240 pixels is based on Omron's proven touch-screen technology and produces 4096 colours, which allows bitmaps to be used with amazing clarity. The display features a long-life backlight (50,000 hours) that maintains the same high-quality performance over its working life. And Omron offers a three-year warranty on parts and repair to support our claim to having the best, most reliable products in the market.

All the functionality you need!
To give you the competitive edge, Omron has added powerful hardware and software integration features into the NS5 operation. One example is the support of FTP (File Transfer Protocol, which is widely used in Internet technology, and does not rely on any industrial network protocol). FTP allows the sending and retrieving of files from the NS on-line, without disturbing the normal operating process.



SMART Active Parts saves you time and money!
The NS terminals come with advanced drag & drop pre-tested software components that communicate directly with control-system components, inverters, motion controllers or any other product connected to the NS. They bring powerful functionality to your machine without the need for expert communications or programming knowledge. This saves you time and money, and enables you to add complex features that were not available before.

XtraDrive - built-in intelligence via open field-bus



If your application demands the highest positional accuracy combined with the shortest cycle times, the most compact size and an ability to connect to a Profibus network then look no further than XtraDrive. As a result of the revolutionary algorithms residing within the drive, XtraDrive offers the tightest control

providing near zero settling time, beneficial in a host of applications such as Point-To-Point control. Furthermore, the Xtradrive has a simple Auto-tune function, so no expert tuning knowledge is required. What's standard in the Xtradrive unit is a controller capable of Point-To-Point,

e-cam and master-slave motion control. Virtually any servo motor, including linear versions, can connect to Xtradrive, plus a further version includes Profibus DP connectivity that can be easily configured in a Siemens Step 7 environment. The range is available in power ratings from 30W to 5kW.

Σ Linear - when speed really matters

The Sigma Linear Motors are used to improve the reliability, speed and accuracy performance in semiconductor/LCD panel production machinery, SMD placement systems and virtually all types of general automation applications.



Driven by ever-increasing demands for higher speed, higher precision, plus quieter and cleaner operations, many industry sectors such as semiconductors, electronic assembly, medical and packaging are increasingly turning to linear motor technology. They offer unchallenged performance in terms of force

and thrust and speed. As well as the performance advantages, the Omron-Yaskawa linear drive ranges, thanks to their simplicity and reliability, are now gaining even wider acceptance in the printing, textile, machine tools and plastics sectors. We offer as standard the iron core FW series with a speeds up to 5.0 m/s

and a force from 86 to 2400N. On request we can supply the coreless GW type or core-type TW with magnetic attraction cancellation (MAC). The latter is a unique design offering ultra-compact size, high thrust and minimum load on bearings factor.

Synergy in safety - Omron & Techno GR



Since last year Omron and TechnoGR have been working successfully together in a joint venture for safety sensors. TechnoGR was established in 1990, and is located near Turin in Italy. With this joint venture Omron offers a full line-up of safety sensors and components. "Another important advantage of this activity" says Lucian Dold, European Marketing Manager for safety sensors and components, "is our ability to offer flexible customisation and application-specific solutions". Omron's safety and sensor business is supported by two competence centres in Europe; TechnoGR, and the "Omron Manufacturing of Germany", which is located close to Stuttgart.

The Omron/TechnoGR partnership has recently released its first innovative products. These include an update and extension of safety controllers for safety sensors, along with a

new range of guards for perimeter protection in machinery. Customised products for presses, mobile machines and packaging applications have been developed.

Advanced safety sensing products

The F3S-TGR-SB perimeter guard series offers superior functionality and flexibility. With operating ranges of up to 50 meters, these perimeter guards are ideal for providing a safety guard for very large machines when used with F39-MDG mirrors. Each perimeter guard features an integrated muting controller for additional functionality. A unique feature is the ability to directly attach a muting actuator for building up a muting system.

The partial muting function helps to achieve the highest level of safety in systems where muting is required. A passive perimeter guard

is also available with an operating range of 6 meters. This 2-beam system only requires a connection to the active unit. The passive unit can easily be mounted without any wiring.

The new controller range combines highly reliable safety functions with maximum savings in cost and space, and offers unique features for building safety systems. Each of the four controllers in the range provides useful LED diagnosis and detachable terminals for easy wiring and maintenance. Two models are dedicated to operating with single-beam safety sensors, and provide muting and testing in one device.

Completing the range are two controllers dedicated to enhancing safety light curtain performance with muting or automatic re-initialization functionality.



ZX-T series - contact measurement sensors



The ZX-T Series is based on Omron's unique plug-and-play platform concept, in which a wide variety of interchangeable sensor heads can be connected to the same amplifier. The platform concept allows the sensors to communicate with PLCs or PCs in order to have a quick and smart system set-up, or to log data for statistical process control. The concept covers all of your measurement requirements and takes the costly and time-consuming process out of selecting the best sensor head for the job.

The ZX-T features a host of remarkable features and functions. These include diverse calculation and controlling functions, which allow you to measure and control the application by high-pass-low output. With the auto scale function you can connect any sensor head by plug-and-play and the amplifier automatically displays the measurement distance after the sensor head has been connected. The multi-point calculation allows you to connect 8 units for addition and subtraction, to give the most even calculation result.

Omron continues to set new standards in precise measurement sensing with the new ZX-T Series of contact measurement sensors. This is the smart solution to high-precision measuring of any kind of material and surface.

Problems caused by excessive pressing force in an inappropriate measurement situation can be detected in advance to prevent malfunction. The sensor head ensures a long service life thanks to its unique linear ball-bearing structure. Sliding parts move smoothly and the rubber sleeves keep dust out. This contact measurement sensor is the ideal solution for those who need very accurate, high-resolution measurements for all kinds of materials and surfaces where non-contact types cannot be used.

F500 - high-resolution, network-ready vision system



Omron will soon introduce the F500, the first in a series of network-ready vision systems. In addition to a large number of digital I/O and a serial port, the F500 features a high-speed Ethernet port, with all required protocols included. This means that high-speed information transfer of images, inspection data, up- and download of parameters to and from anywhere in the customer's network will be no problem at all.

High-resolution digital cameras

The F500 is the first to be able to handle two high-resolution (1K x 1K) digital cameras based on the Camera Link standard. This, together with its extraordinary image quality compared to an analogue camera, makes the F500 the perfect solution for applications where high precision is required.

Easy-to-use GUI

Like all of Omron's vision systems, the F500

features the easy-to-use Graphical User Interface (GUI) that simplifies the system's set-up and configuration for vision inspection tasks. There's no need for external programming; pull down menus guide the user through the set-up routines.

Later this year Omron will introduce optional PC-based configuration software. Using the high speed Ethernet connection, the user will be able to configure a single F500 system or a network of systems from a central PC platform. As the

"built-in" user interface, the PC-based configuration software will provide an easy-to-use GUI.

Advanced tools

Advanced inspection algorithms in the F500 ensure that the inspection process is fast and ultra precise. These algorithms include lots of inspection and measurement tools, as well as the unique QUEST Optical character recognition tool, EC (edge code) detection tool for extremely precise object location, and many more.

High-precision, CCD-based laser displacement sensor systems



Omron has just introduced a high-precision displacement sensor system that provides very stable measurement on many different types of objects. The ability of the Z300/500 series to offer extremely accurate measurements and on objects with difficult profiles is thanks to Omron's innovative two-dimensional CCD sensor, which is combined with an enhanced controller running a powerful algorithm that ensures optimal sensitivity, no matter how varied the reflected light.

Z300 - high-precision sensor for complex surface measurement

The Z300 can measure on surfaces that vary from transparent glass and highly reflective stainless steel to black rubber tyres; it can even measure the thickness between layers in multi-layered transparent objects. This makes the Z300 an ideal measurement system for use in the glass, automotive, semiconductor and electronics industries where high-precision visual measurements are required.

What makes the Z300 so special is its ability to perform highly stable, high-precision inspection, distance inspection and thickness inspection of transparent objects. In multi-layered glass for example, the Z300 can extract the light from the top surface, the bottom surface and the layers in between, and provide the thickness of any layer with great accuracy. This sensor is just as good at measuring the

thickness of non-transparent objects (such as a rubber tyre). In this case two sensor heads are used, one on either side of the product, to calculate the thickness. The calculation distance between each head and the object is compared inside the Z300's controller. Four different sensing heads with different detecting distances and resolutions are available to cover almost all application needs.

Z500 - complex profile measurements possible with Omron's new high-precision displacement sensor

The Z500 product series provides a very accurate, stable measurement of an object's profile, no matter how complex the surface of the object. The Z500 series does this by emitting a band of laser light onto an object, which reflects this beam onto a two-dimensional CCD sensor. A dedicated controller processes the CCD output to provide measurement data and a visual display of the object's profile on a monitor for evaluation.



The Z500 series offer a choice of four sensor heads with different detecting distances and resolutions to cover almost all application needs. These sensors are ideal for use in the automotive and aerospace industries, where high-precision glue bead, gap and weld inspections are required.

Z510 - quality inspection for welding beads

Omron has also introduced a sensor system (Z510) that is dedicated to the in-line inspection of welding beads. The Z510 works on the same principle as the Z500, the only real difference being in the evaluation software.

The Z510 is designed specifically to check the integrity of welding beads. Any cracks, pinholes or gaps in the weld are immediately picked up.

Easy set-up, monitoring and maintenance

Ease of use is another benefit of the Z300 and Z500 product family. A graphical user interface (GUI) guides you through a series of menus, depending on the application you select.

There's no PC to connect to, and no complex programming to be done.

Monitoring the application can be done at every stage, from installation and adjustment to operation and maintenance. The status of laser beam images can be displayed on the monitor screen. With a wide range of features previously difficult applications can now be done with ease.

Character and Mark Recognition Technology "Pattern Vision"

Omron is working on a compact, highly accurate Character Recognition and Mark Recognition system using a new type of pattern recognition technology that mimics the way people see.

The rapid spread of computers and telecommunications capabilities has led to enormous growth in the availability of information, as well as dynamically increased demand for access to information in electronic format. Yet the task of re-inputting information into electronic media still often must be done by hand, a process which is extremely tedious and time consuming. Optical Character Recognition (OCR), Online Character Recognition (OLCR), or Mark Recognition (ex.Barcode Reader), which enables computers to recognize and process written information at a glance much the way people do, aims to resolve this information input impasse.

OCR and other pattern recognition system were developed for central processing with large machines such as zip code readers. But what is needed today is a miniaturised version that can be incorporated into any kind of information tool so as to enable instant input.

Omron is developing dramatically miniaturised OCR, OLCR, and mark recognition technology that captures letters and marks using a completely new concept of mimicking the way people see. With this technology, character or mark recognition functions can be loaded onto a single chip.

This technology is already being used in Peeo - the world's smallest pen type OCR that reads Japanese - OmCR Japanese OCR software and many kinds of automated equipment. Moreover, work is underway to make it even smaller and more accurate, in an attempt to solve the input impasse of today's information-driven society.

http://www.omron.com/r_d/index.html



Valmet Automotive uses Omron's automation expertise to produce one of the most famous cars in the world



Valmet Automotive is an independent European manufacturer of premium quality cars in Finland with a production capacity of 100,000 cars a year. The company is co-owned by the Metso Corporation and Thyssen Krupp Automotive AG.

In the 30 years since Valmet Automotive started production in Uusikaupunki on the south-west coast of Finland, it has produced more than 980,000 passenger cars like Chrysler-Talbot, Opel Calibra and Saab, all destined for the global market.

In 1997 Valmet Automotive started the assembly of the Porsche Boxster, and last year they celebrated the production of the 100,000th model.

The body shop

Valmet Automotive's body shop consists of one main line and sub-assembly cells. The main line is highly automated, while the sub-assembly cells are either automated or manually operated. The spot-welding process for

example, is 85% automated, and in ARC-welding the automation level is about 80%. The body shop process has to be flexible enough to satisfy the various requests of the Porsche customers for different body features.

In this area more than 20 Omron PLCs have been installed and are Ethernet networked. ControllerLink and DeviceNet are also used in the different stations. All the necessary production data collected by these PLCs is simply transferred via the network system to the production planning and management departments.

In addition to PLCs, many Omron frequency inverters, sensors (including an F210 vision sys-

tem) and other Omron industrial components are being used in the Porsche body shop area. Mr. Hannu Tuupanen, Senior Project Engineer from Body Shop Manufacturing Engineering has several years experience in Omron systems and components. "Quality and reliability are key factors in automobile industry" says Mr. Tuupanen. "We also require these same attributes from our suppliers. Valmet Automotive has more than 20 years experience with Omron, and Omron has been able to meet our requirements for expertise and high technology products".

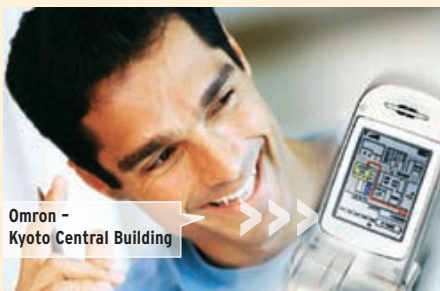
Final assembly and beyond

Omron products also play a major part in the final assembly, paint shop and materials

handling processes. In the final assembly for instance about 150 Omron PLCs are installed, some of which are networked via Ethernet. Controller Link and DeviceNet are also used. Data from the PLCs is transferred via the network system to production planning and management systems for analysis. The final assembly process also uses Omron Industrial components, RFID, and sensors like proximity switches and photoelectric sensors.

According to Mr. Tapio Mattila, Senior Product Engineer of Final Assembly, "reliability and technical support are of vital importance in the final assembly area. Omron's products have always satisfied our needs in this part of the manufacturing process".

Omron Trends



Verbal interaction technology between humans and machines

This technology has four components, which are speech recognition, voice synthesis, dialogue control, and text manipulation. Efficient interaction is realised by combining their components.

We possess design technology that ensures a high performance dialogue system, voice/picture integration technology (YouMirOs) interfacing a phone voice and the WEB over a mobile phone, and a voice integration engine (CrysTalk) that reproduces human voice quality.

When verbal communication between humans and machines can be realised on the same level as that of communication between humans, it is anticipated that machine operation will be more natural, simplified, and require less time. Along with vast improvements in voice recognition technology over the last several years, automation of call centres and phone mail order such as ticket selling has progressed. Omron has also expanded its voice recognition system business into phone applications.

Omron has proposed a method of a Voice User Interface (VUI) for customers designing voice recognition systems. VUI is effective in improving the ratio of a business task completed by a system (ex. catching a user's address.) YouMirOs is a technology that carries out synchronous control of a voice telephone call and the WEB over a mobile phone. It becomes possible to input simply with a sound and to check on the screen that has a high list nature.

The speech synthesis system based on waveform concatenation is expected to approach near human vocal quality. Omron is involved in developing algorithms that eliminate unnatural intonation problems inherent to waveform concatenation.

http://www.omron.com/r_d/index.html



Envelope-filling system does 18,000 insertions/hr with Omron's technology inside



Touch screen panel NS12 - the control centre of the envelope-filling system

A variety of groundbreaking inventions have contributed to MB Bäuerle's outstanding reputation around the world as an innovative and experienced company. The computer-controlled folding machine is an example of this. This innovation, patented by MB Bäuerle, was the basis for further development in international folding machine engineering. Today, all solutions for automation of folding processes are based on this idea.

The autoSET 18 is a prime example. This is a modular high-performance envelope-filling system designed to meet the changing demands in the market for simpler operation, higher performance, variable processing modules and intelligent control of machines. This system is used mainly in banks, insurance companies, telecommunication companies, and energy companies by government authorities and other service providers that have high volumes of mail and a high staff turnover. With a performance of 18,000 inserts/hr, regardless of the number of enclosures, this high-performance system is the result of MB Bäuerle and Omron working together to create the optimum automation solution with the greatest possible benefit to users.

Omron's technologies guarantee highest dynamics

Omron's CJ1 high-performance PLCs are used in the autoSET 18 for head control and decentralised controls for the respective modules. These PLCs combine the smallest dimensions with the best performance (as small as a cigarette packet, with very fast cycle times), openness (DeviceNet, Controller Link, Profibus, CanOpen, Ethernet, 30 serial interfaces) and, of course, the programming environment. The CJ1 PLCs are linked using the high-speed Controller Link bus. This networking guarantees the simplest plug-and-play configuration and the highest transfer rate (around 8 times faster than DeviceNet).

System information processing is done via Omron's NS touch-screen terminals. These terminals are equipped with the highest display qualities (readable from acute angles), multi-language capability (all relevant characters are available) and, of course, openness (Ethernet on board). Products like envelopes, bank statements, enclosures etc. are fed using 27 SmartStep servo drives. Once again, these Omron drives combine the advantages of small dimensions



27 SmartSteps control the document transport

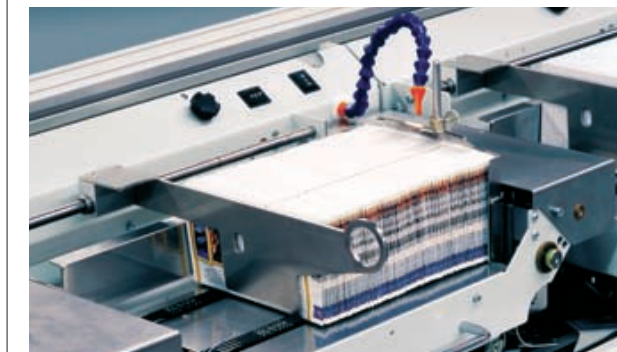
with the best performance, greatest dynamics (mass inertia ratio 1:100), easiest parameterisation and, of course, price (you get a servo drive for the price of a stepper motor). Drives with asynchronous motors, for example, are used for the folding mechanism. Omron's frequency converter J7/V7 provides the required maximum drive performance. Top performance is also required in the area of detection. This is where Omron's E3T sensors are used, thanks to their ultra-compact dimensions, minimal black/white error and excellent price/performance ratio. Other components such as the S8VS switch mode power supplies, the G2R series relay and Omron safety solutions make this solution complete.

Speed, openness and flexibility

The cycle time of the complete system is less than 2 ms. The system is not decelerated artificially by the control system, and achieves unsurpassed levels of throughput through automation solutions that have been aligned with one another. MB Bäuerle has partnerships with all well-known paper processing companies, so it is very important to be able to respond quickly to their requests. The open network architecture of the autoSET 18 means that modifications can be carried out at any time, and in the fastest possible time.

MB Bäuerle operates on a global scale, so naturally the quality of its products and availability throughout the world is important. Omron has 24,000 employees worldwide, and all of its products correspond to worldwide standards and approvals (CE, UL, CSA, CCC and the relevant environmental regulations of each of the regions). Omron's unique 100% quality control protects partners from potentially expensive breakdown costs. Herbert Hermann, Managing Director of MB Bäuerle commented on this: "Thanks to the innovative, open and high-speed automation

solutions of Omron, we are in a position to respond at very short notice to the needs of our customers. This is important to us. This is why the partnership with Omron means so much to us. We are certain that we will continue to walk new paths together with Omron in the interests of our customers. I would also especially like to emphasise the know-how of Omron employees. Regardless of the task we consult them on, they always produce a solution in the shortest time.



Control of letter enclosures is carried out via the individual enclosure stations



Omron Healthcare develops high-precision technology to sense cardiac load and arterial stiffness

Omron Healthcare Co., Ltd (Kyoto, Japan) has developed highly accurate sensing technology for measuring pulse waves of the wrist artery to calculate AI (Augmentation Index), an index said to be interrelated with loads to the heart and hardening levels of the arteries.

Circulatory diseases, such as ischemic heart disease and cerebral stroke are major causes of death in today's developed countries. These diseases are often induced not only by hypertension but also arteriosclerosis and cardiac hypertrophy.

Therefore, monitoring changes in "cardiac load" (burden to the heart) and "arterial stiffness" (hardening levels of arteries) in addition to the changes in blood pressure readings are effective in collaterally preventing and delaying the worsening of the diseases.

As a method of measuring cardiac load and arterial stiffness, Omron Healthcare has made focused efforts in analysing pulse waves of the artery of the wrist, and has developed a highly accurate sensing technology for the measurement that is easier in performance and higher in reproducibility. For the measurement, the new sensor automatically presses the monitor part of a device against the radial artery of the wrist at an optimal force, to non-invasively detect pulse waves given by the artery's internal blood pressure. Secondly, "ejected waves" and "reflected waves" are extracted from pulse waves to be used to calculate AI.

As the device is capable of automatically catching pulse wave signals, which exactly reflect the internal arterial pressure, it does not require special skills and makes it possible to perform measurement on ambulant patients easily and accurately while they are seated.

www.omron-healthcare.com



Important news for machine builders...

who want to grow in China



中国强制认证

China Compulsory Certification

Why not use one of the most experienced industrial automation product suppliers in the Chinese market? Whatever industry you are in, Omron can help make you more efficient, more reliable, more competitive and more profitable. Just ask our customers!

More production means more machines
China's entry into the World Trade Organisation (WTO) in 2001 represented a historic milestone for the People's Republic and its economy. The country has been involved in a process of integrating globally valid rules and principles into its economy, and is gradually opening up all its markets. As a consequence, China is also playing a key role as a fast-growing international production centre. And where production centres are growing, opportunities for machine builders are growing.

Total support for machine builders on location
Machine builders represent one of the most important industrial automation business areas for Omron worldwide, so it's only logical that our operations in China are fully organised to support machine builders. With over 4500 employees and an infrastructure of over 165 distributor organisations, we have a

service network that has already proven to be successful. For example, we sell more PLCs than anyone else in the People's Republic of China. We strongly believe that our successful growth here is based on commitments to our customers. Omron's fully-fledged operation in China is a guarantee of that.

Speed up the certification of your machines
On May 1st 2002, the People's Republic of China implemented a mandatory certification on a wide range of products manufactured or sold in China. This CCC mark became fully effective on August 1st 2003. The CCC mark combines the former CCIB (safety) mark and the CCEE mark for electrical components. This regulation is of great interest to countries exporting to China. All of Omron's products destined for this market are CCC approved, and this will certainly speed up the certification of your machines.

Furthermore, all Omron products are tested for higher noise immunity, which is recommended for the Asian power supply. It will reduce the risk of machine failure caused by the nature of this power supply.

We are there for your customers
Our well-established service network throughout China can provide personal advice to our customers during the start-up and set-up phases. We offer application-specific support and on-site training to those who are implementing, installing or operating Omron products in their machines.

At our training centres in Beijing and Shanghai we provide in-depth product and application training, workshops and seminars to ensure that the customers of our machine builders get the very best out of Omron products.

We can also provide tailor-made on-site training, in accordance with our customers' requirements. This type of training support is always highly appreciated.

Catalogues and manuals in Chinese
By the way, did we already tell you that the most essential manuals are all in Chinese?

Why you should use Omron if you want to grow in China:

- Years of experience and a highly respected reputation
- Well-established support network, on-site support to local staff
- Catalogues and manuals in the Chinese language
- Training and help-desk in the region
- Systems that are tested for typical Asian power supplies with higher noise immunity
- Products destined for the Chinese market are CCC approved



The future now: Gibbs Aquada high-speed amphibian car

The car James Bond used in Octopussy is a reality now - kinda, it does not dive yet. The Gibbs Aquada is designed to reach speeds of 100mph on land and over 30mph on water and can switch between the two surfaces by pushing a button. Gibbs Technologies, who designed it, says that no other road-legal amphibian has managed to exceed 6mph on water. The high-speed land and water vehicle Gibbs Aquada costs 150,000 pounds sterling (US\$225,000).

www.aquada.co.uk



First running humanoid robot

He may not be able to give you a run for your money but one quick step for Sony Corp's Qrio humanoid robot is one big step for robots in general. The big technological breakthrough was in getting both the robot's feet to lose contact with the ground at once. Up until now humanoid or two-legged robots have needed to have one foot on the floor to move stably. Other enhancements for the latest version of Qrio include more advanced finger control that allows him, swivelling like a baseball pitcher, to throw a light ball some three to four yards, and hold fans while dancing. Sony said it still doesn't have a timetable for commercialising Qrio, whose name is short for "quest for curiosity."

www.sony.net/SonyInfo/QRIO

Please send me information on the following new products:

- E5CN series – the best temperature controllers around
- Buffer Unit S8T-DCBU-02 – for power management control
- K3HB series – Omron's new panel indicators
- Cx-One – one software for your system
- CX-Profibus – the latest configuration technology
- CJ1 Screwless I/O Units – the reliable connection
- Omron's CAN unit for the CJ1 – how flexible CAN you be?
- A complete machine management tool in just 5.7 inches
- XtraDrive – built-in intelligence via open field-bus
- Σ Linear – when speed really matters
- ZX-T series – contact measurement sensors
- F500 – high-resolution, network-ready vision system
- Z300/Z500 – high-precision, CCD-based laser displacement sensor systems

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