

# OMRON

## Product News

Spring 2006



**trajexia**  
you decide

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**Never stop, never fail, just create...**



## **Usability - the key ingredient to JUST CREATE!**

At Omron, we refer to a product as being highly usable when it takes just seconds to find and minutes to set up.

The aspect of easy operability is best highlighted through the vision sensor ZFV, which comes with a built-in screen showing live inspected images; the Trajexia new motion platform that breaks the

myth of complex motion control through openness and simplicity or SmartSlice remote I/Os that are the smallest and smartest devices in the market.

We hope that this new edition of Product News magazine inspires you to design better machines. For more details please visit our website [www.industrial-automation.com](http://www.industrial-automation.com).



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## SmartSlice I/O system



### Smart functions you can rely on

#### SmartSlice: Intelligence at I/O level

In automated production, high availability is absolutely critical to stay efficient. Smart control systems that can help your process stay running are always a worthwhile investment. The latest innovation from Omron is SmartSlice. This modular, remote I/O system is full of patented, smart features – making it the most intelligent and easy-to-use remote I/O system currently available. SmartSlice will allow you to minimise engineering, troubleshooting and maintenance in your machine, line or plant, resulting in significantly reduced downtime.

#### Maintenance data logging minimises downtime

All SmartSlice I/O units autonomously collect and store the information that will help you plan machine maintenance. Timely detection of reduced performance will minimise unplanned downtime and keep machine performance fast and reliable.

Each unit remembers its last maintenance date: maintenance personnel can check per unit if there have been any replacements or repairs.

A descriptive comment can be entered per node, per unit, even per I/O point. This can help you troubleshoot a machine without having to know PLC-internal tag names or programs.

#### Early-warning system prevents breakdowns

Every SmartSlice unit has its own built-in early-warning functions, enabling you to schedule maintenance and prevent breakdowns.

Warnings include:

- Supply voltage out of safe range – e.g. due to damaged cable or poor connection.
- Preset maintenance interval exceeded – which can be a time interval or a target number of operations, to indicate that an inspection of (electro-)mechanical parts is required.
- Maximum allowed delay between two I/O signals is exceeded – to indicate that wear or lack of lubrication is causing a machine to work slower than intended.

These warnings would be useless if you cannot easily find the underlying cause. Therefore, there are several convenient ways to access the information, with little or no PLC programming:

- Directly from the network maintenance view of CX-One
- By using Smart Active Parts on the NS-series HMIs
- By using predefined Function Blocks in the PLC

### Highly compact

More compact than any other modular I/O system – with a height of only 80 mm – SmartSlice takes up very little space in your control cabinet. With a 3-wire input connection there is no need for additional power distribution rails; all your field wiring, including sensor power supply, can be directly connected to the units.

### Fast backup and restore

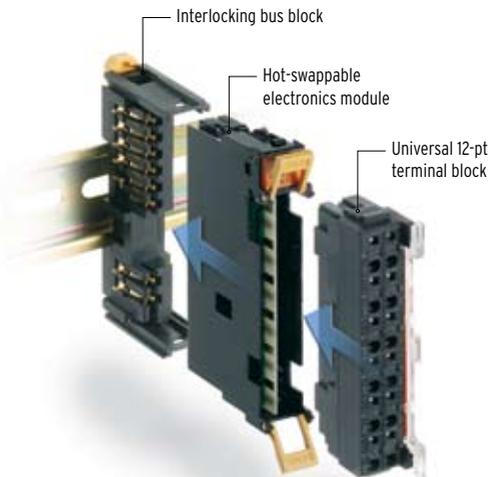
With all the intelligence and advanced functions in SmartSlice units, backup and recovery of settings are important to support fast maintenance and repair of your machine. These functions are therefore also tool-less in SmartSlice. All I/O unit data can be backed up in the bus interface unit at the flick of a switch. Recovery is even simpler; after hot-swapping a unit, all settings are automatically loaded.

### An integral component of Smart Platform

The SmartSlice remote I/O series was developed as a part of Omron's Smart Platform. Designed to make machine automation easy, Smart Platform provides seamless, drag-and-drop integration of all automation components in your machine. From sensor to controller, from HMI to drive, all devices are accessible through one connection using a single software suite, CX-One. Moreover, built-in distributed intelligence in Omron devices means that you spend less time programming and troubleshooting.

### Features and benefits:

- Modular remote I/O with up to 64 I/O units per station
- DeviceNet and PROFIBUS-DP interfaces
- Intelligent functions in all units reduce PLC programming
- 3-piece construction for easy installation and maintenance
- Tool-less push-in connection technology



## CP1H - Compact PLC



### Features and benefits:

- 4 high-speed encoder inputs and 4 fast pulse outputs
- AC or DC supply, 24 digital inputs and 16 digital outputs (transistor or relay)
- CJ1M-compatible instruction set and execution speed
- Expandable with intelligent CJ1 I/O and communication units
- Analogue I/O built-in (optional), RS232C and RS-422A/485 serial ports (plug-in option boards)

## The all-in-one PLC

Combining the processing power and data capacity of the CJ1M series with the built-in digital I/O functionality of the CPM2A series in a compact PLC outline, the CP1H CPU series sets new standards.

### Flexible I/O possibilities

With 4 high-speed encoder inputs up to 1 MHz (single phase) and 4 pulse outputs up to 1 MHz (line driver), CP1H CPUs are ideal for positioning and speed control. Their optional 4 analogue inputs and 2 analogue outputs plus advanced PID control with auto-tuning also make them ideal for continuous control applications.

What's more, CP1H CPUs can be expanded with CPM1A I/O units (up to 320 I/O points) and up to 2 CJ1 Special I/O units or CPU bus units, to provide

a wide range of communication interfaces and advanced I/O units.

Equipped with a USB interface as standard for programming and monitoring, the new CPUs allow up to 2 serial ports to be plugged in for communication with HMI or field devices. And, of course, they provide Smart Platform communication routing over multiple network layers.

### One architecture

The CP1H CPU series has the same architecture as the CS/CJ PLC series, which means programs are compatible for memory allocations and instructions, and also support Function Blocks and Structured Text.



## DyaloX - Industrial PC series



### Features and benefits:

- Reliable 24/7 operation in even the harshest conditions
- Full 3-year warranty and 7-year repair guarantee
- Windows XP embedded
- Industrial-grade 1.3 GHz Intel Celeron CPU
- Fan-less heatsink cooling for enhanced reliability
- No hard disk, 1 GB reliable Disk-on-Module storage

## Ruggedized for reliable round-the-clock operation

### Created for 24/7 operation

The Omron DyaloX industrial PC is setting new standards in industrial reliability. It is created specifically for operation 24/7 in even the most demanding industrial environments, so you can definitely rely on this PC based product in your machine.

We've achieved this exceptional reliability by using only the highest industrial grade components in manufacturing and by eliminating every potential source of failure – such as all moving parts like hard disks and cooling fans. What's more, drawing on our many years' experience in the manufacture of industrial-class stand-alone equipment (like Automated Teller Machines), we've created unique self-diagnostic hardware and software, like O-RAS,

to ensure that DyaloX IPCs will keep on running long after other IPCs have given up.

That's why we offer a full 3-year warranty and a guarantee to repair your DyaloX IPCs for up to 7 years after purchase. So unlike many office PCs, like products that have very short life cycles, the DyaloX is a product with guaranteed continuity.

With the new DyaloX you will have the highest possible reliability and continuity in your PC-based machine automation system.



# CX-One 2.0 - Software

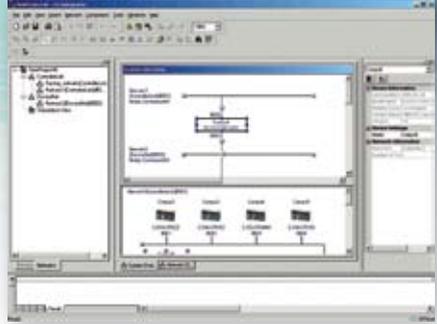
## Improved graphical configuration

Omron's successful CX-One software continues to offer improved functionality to further simplify the task of machine automation. Targeted primarily to satisfy the demanding requests of OEM machine builders, this new version, V2.0, offers major improvements in 2 key areas:

- graphical system overview and
- increased software integration.

As machines now use more and more advanced programmable devices and distributed control architectures to meet customers' requirements, the biggest issue is how to manage these systems? It is becoming increasingly common that 20-30 programmable or configurable devices are used on machines.

Are you confident that anyone in your company can program your machine and ensure that the correct versions of all files and programs will be used? With Omron's CX-One software, you can be!



### Graphical System Overview

#### One software

To further simplify the development and programming of machines, CX-One displays the automation system of your machine or line in a graphical format. This unique and easy-to-use overview enables users to easily design a modular automation system.

#### Project file management

Part of this easy-to-use Graphical System Overview is increased file management functionality. This further simplifies the saving and restoring of program and configuration files for your system, so not only are all files automatically saved in a commonly used defined directory, but the file names and detailed information are clearly displayed on the screen.

#### The benefit

Easier saving and opening of the latest correct program or configuration file for each device. This will lead to a reduction in common errors caused during machine development, or building repeat machines, by using the incorrect versions of files and programs.

With CX-One software almost anyone in your company – from mechanical engineers to software developers – can load the correct programs and configurations into a machine, either during build-up, commissioning or during on-site servicing.



# CX-One



## Common simulation engine for PLC and HMI

To provide additional benefits for the integration of software, CX-One now allows the common simulation of PLC and HMI programs.

The off-line simulation of PLC programs, which has been available for many years with Omron using CX-Simulator, allows the PLC program to be tested and debugged without connecting to a real PLC.

Now it is possible to simulate both the PLC and HMI program together on a single computer and, for example, when inputs are activated on the simulated HMI application these are read by the simulated PLC.

### The benefit

This common simulation improves the efficiency of development or modifying your automation system programming.

## New features and benefits:

- Graphical system overview
- Improved file management
- Tag sharing
- Common simulation

Symbol	Type	Program	Comment
PLC_1	PLC	PLC	PLC
PLC_2	PLC	PLC	PLC
PLC_3	PLC	PLC	PLC
PLC_4	PLC	PLC	PLC
PLC_5	PLC	PLC	PLC
PLC_6	PLC	PLC	PLC
PLC_7	PLC	PLC	PLC
PLC_8	PLC	PLC	PLC
PLC_9	PLC	PLC	PLC
PLC_10	PLC	PLC	PLC

Copy the I/O allocation table created using Excel and past to the CX-Designer symbol table.

Symbol	Type	Program	Comment
PLC_1	PLC	PLC	PLC
PLC_2	PLC	PLC	PLC
PLC_3	PLC	PLC	PLC
PLC_4	PLC	PLC	PLC
PLC_5	PLC	PLC	PLC
PLC_6	PLC	PLC	PLC
PLC_7	PLC	PLC	PLC
PLC_8	PLC	PLC	PLC
PLC_9	PLC	PLC	PLC
PLC_10	PLC	PLC	PLC

The I/O allocations in the table are registered as symbols.

## Increased software integration

### Sharing tags between software packages

With over 70% of PLCs now connected with an HMI terminal the biggest issue is the time and effort needed to correctly program, document and maintain the software for the system, and therefore ensure all devices use the same tag points.

With CX-One, one simple drag & drop operation shares the PLC tags information directly between PLC and HMI projects, therefore allowing a more efficient development of the HMI program.

### The benefit

This time-consuming operation tends to errors that typically result in extended commissioning time and increased on-site costs.



## CX-Programmer 6.1 – Software



### Features and benefits:

- Integrated in CX-One, Omron's universal software suite
- Auto-connect through USB or serial links
- Enhanced security: protect your knowledge
- Easy setup screens for all PLC units
- PLC simulation tools included: test before you even download

## Programming and debugging your PLC was never easier

CX-Programmer, the universal programming software for all Omron's PLC series, has entered its 6th generation. It has now been integrated in the CX-One software suite; from CX-Integrator, the network manager of the suite, any automation device from sensor to controller, from input unit to servo drive, can now be accessed for configuration, programming, monitoring and maintenance. And all through a single connection, on any network layer.

PLC setup is now easier than before, with new parameter setting dialogues for all the CJ1 and CS1 PLC units. Unit configuration data can be copied to other units, or even across projects. Complex initialization sequences are a thing of the past, reducing the PLC programming effort.

With its unique companion program CX-Simulator, it is possible to emulate the behaviour of your PLC programs without having any hardware connected. Whether programmed in IEC 61131-3 Structured

Text or conventional ladder language, the correct operation of all your code can be verified to the last detail by simulating input data, and tracing program behaviour every step of the way. When connected to the target system, all variables, inside or outside function blocks, can be monitored or logged for detailed analysis. These powerful debugging tools will save time in your critical testing and commissioning stages.

To protect your expertise in machine automation, CX-Programmer now supports more levels of protection than before. You can allow end users to see the overall program framework, but hide specific algorithms in function blocks. Machine reconfiguration and maintenance will be possible on-site without revealing the machine builder's technological know-how.



## CX-Designer - Software



### Features and benefits:

- Share tags between PLC and HMI  
Drag & Drop from CX-Programmer  
or Copy & Paste from Excel
- Very easy re-use of projects  
and screens
- Windows look and feel Easy selection,  
Docking of windows etc.
- Export labels for easy translation
- Integrated in CX-One  
Open the HMI software from  
CX-Integrator
- Easier and faster download  
of NS projects
- New Smart Active Parts
- On-line help

## Completely new, but still familiar

**NS-Designer has been the software for Omron HMI for some years**

This software has been renewed and is called CX-Designer. This renewal was needed to enable us to implement the functionality our current and future customers ask for. CX-Designer is now integrated in CX-One, which means that you can, for instance, share tags between PLC and HMI, and that you can integrate HMIs more easily in your network enabled machine. Windows features are now fully supported by CX-Designer and the user interface has many of the same icons and dialogs like other Omron software packages in CX-One.

In CX-Designer it is very easy to re-use existing projects or screens. By just dragging and dropping a screen from one project to another, all references to other copied screens will be updated automatically, and you can choose to assign another communication target if needed.

You can fully adapt the user interface and toolbars to your needs. Object properties are now visible in a dockable property window, but also the “double click” edit dialog of NS-Designer is still available.

That’s why we call CX-Designer completely new but still familiar.



## Trajexia - Motion controller

# trajexia



## Trajexia - the advanced motion controller that puts you in control

Trajexia is the new motion platform that offers you the performance of a dedicated motion system, the ease of use you get from an automation specialist and the peace of mind you have from a global player.

Trajexia puts you in full control to create the best machines today and tomorrow.

### Perfect control of 16 axes

Controlling all 16 axes with a total system cycle time of 1 ms, Trajexia ensures the fastest operation at the highest accuracy.

### Real multi-tasking

Trajexia is a real multi-tasking controller capable of running up to 14 tasks simultaneously.

### Robust and stable motion bus

Specifically designed for motion control, MECHATROLINK-II offers the communication speed and time accuracy essential to guarantee perfect motion control of servos.

### Best-in-class servo drives

Offering a wide variety of rotary and linear servomotors, Omron's Sigma II servo series is designed with no compromise on quality, reliability and performance to guarantee best-in-class motion control.

### Inverters and servos over the same bus

The inverters connected to the MECHATROLINK-II are driven at the same update cycle time as the servo drives.

### Freedom to communicate

Besides a built-in Ethernet port that provides connectivity meeting today's and foreseeable future communication standards, Trajexia also includes interfaces to popular field buses such as Profibus-DP and DeviceNet.

### Freedom to control

Trajexia offers perfect control of up to 16 axes over a MECHATROLINK-II motion bus with independent position, speed or torque control for every axis. And its powerful motion instruction set makes programming intuitive and easy.

### Freedom to build

You can select from a wide choice of best-in-class rotary, linear and direct-drive servos as well as inverters. And the system is scalable from 2 up to 16 axes and 8 inverters & I/O modules.

### Features and benefits:

- 16 axes advanced motion coordination over a robust and fast motion link
- Each axis can run complex interpolation moves, e-cams and e-gearboxes
- Advanced debugging tools including trace and oscilloscope functions
- Multi-tasking controller capable of running up to 14 tasks simultaneously
- Open – Ethernet built-in, PROFIBUS-DP and DeviceNet as options



## Varispeed V7 - Frequency inverter



### V7 inverter - Better than the best!

The most popular drive in the world is now available in IP65 housing and customised application software. The Varispeed V7 is the perfect drive for standard industrial applications such as conveyor, cranes, grinders, etc. It delivers an amazing 100% torque at 0.5 Hz, ensuring a very stable motor speed. It is also extremely compact and silent. It can interface with all popular field buses as an option. You can turn the V7 into a decentralised control station when adding a PLC option board, or when using new V7 IP65 stand-alone solution.

#### Features and benefits:

- Sensorless vector control ensures 100% at 0.5Hz
- Compact size available in IP20 or IP65
- Silent operation with no current de-rating
- Programming software: CX-drive for parameter configuration
- CASE (customised application software for Omron-Yaskawa inverters)
- Embedded Omron PLC features with PLC option board

#### Ordering information

Specifications	
400V three-phase	0.2 Kw to 7.5 Kw
200V three-phase	0.1 Kw to 7.5 Kw
200V single-phase	0.1 Kw to 4.0 Kw
Application	Compact general purpose
Control method	Sensorless vector and V/F control
Torque features	100 % at 0.5 Hz
Connectivity	Memobus, DeviceNet, Profibus, CANopen, Mechatrolink-II
Customisation options	PLC Option Board Customised Application Software IP65 Enclosure



# Varispeed L7 – Frequency inverter



Designed specifically for the lift market, the L7 series ensures that lifts exceed the ride quality and safety demands of the market.

Omron-Yaskawa's frequency inverters are currently being used in over 100,000 lifts around the world! The L7 ensures 3 million full load starts during its lifetime.

## Made to drive any lift

The L7 inverter is now able to drive permanent magnet motors as well as induction motors with only one model. It also comes with an advanced rescue function that guides the lift to the nearest floor during power loss. The new L7 also meets safety stop category 0. The L7 inverter is designed specifically for lifts with high starting torque, auto-tune at standstill and customised operator interface.

### Features and benefits:

- One model to control AC and PM motors
- Silent operation with no current derating
- Safety Cat 3 stop. Cat.0 embedded as standard
- Battery operation for emergency rescue
- Motor auto-tuning at stand-still and at RUN
- Programming software: CX-drive for parameter configuration
- Embedded Omron PLC features with PLC option board

### Ordering information

Specifications	
400V three-phase	4.0 Kw to 55 Kw
200V three-phase	3.7 Kw to 55 Kw
200V single-phase	N/A
Application	Lift control with asynchronous or synchronous motors
Control method	Open and close loop for Vector and V/F control
Torque features	150 % at 0.0 Hz ( CLV ) 150 % at 0.5 Hz ( OLV )
Connectivity	Memobus, DeviceNet, Profibus, CANopen, LONWorks, Ethernet
Customisation options	PLC Option Board Customised Application Software



## CASE - Customised application software for Omron-Yaskawa inverters

CASE is special software that provides solutions for customised applications. It gives a standard inverter the performance of a custom-made solution, allowing huge savings in hardware equipment and increasing the overall system reliability.

## ELS - Electronic Line Shaft software for F7 series

### ELS (CIMR-F7Zxxx-S8161)

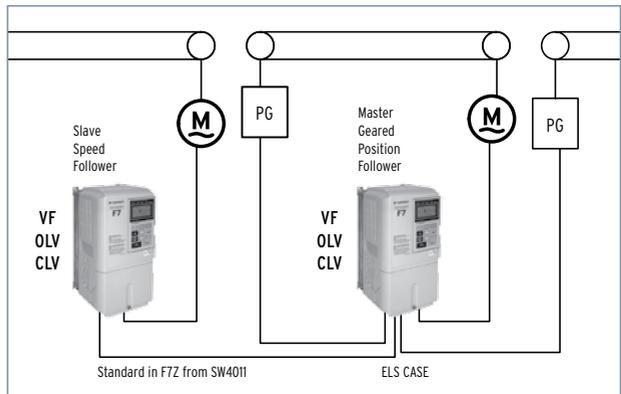
The Electronic Line Shaft CASE software is the Omron-Yaskawa dedicated software for position and speed follower applications, allowing a slave drive to precisely follow a master encoder. The ideal solution for dual motor synchronized applications.

### Features and benefits:

- Position phase follower
- The speed and position ratio between the master and the slave is infinitely adjustable
- A gear ratio can be adjusted from several sources
- A PG-Z2 option board is required for phase synchronization
- Position offset advance / retard by digital / parameter or communications



Electronic Line Shaft application software.



Example of ELS software application.

## Pump Sequencer software for E7 series

### Pump Sequencer software (CIMR-E7Zxxx-S8801)

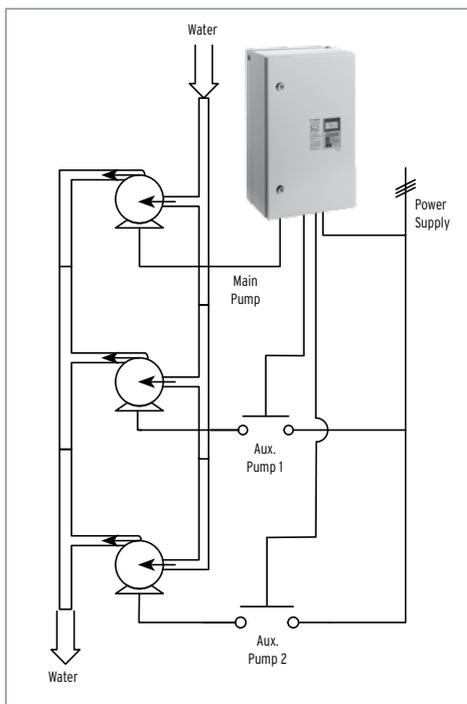
The Pump Sequencer CASE software is the Omron-Yaskawa dedicated solution for pump sequencer applications for up to 2 auxiliary pumps. It is the ideal solution for water treatment installations, building HVAC and industrial pumping.

#### Features and benefits:

- Dedicated physical units, faults and alarms
- Control mode selection by macro: pressure, flow, temperature
- Modulated pump with advanced PID and automatic frequency Drop & Rise
- Pressure feedback signal from analogue input
- Automatic / manual emergency mode operation by pump override



Pump Sequencer application software.



Example of Pump Sequencer software application.



## CASE - Customised application software for Omron-Yaskawa inverters



### Point-to-point position control software for F7 Series

#### Point-to-point positioning (CIMR-F7Zxxxx-S8795)

This software is the Omron-Yaskawa dedicated solution for point-to-point positioning applications. Absolute or relative positioning is possible. It is the ideal solution for palletizers, transfer lines, positioning machines and cyclic feed-rolls.

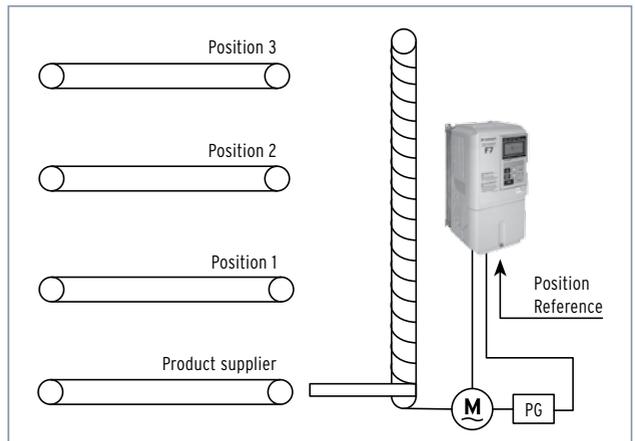
#### Features and benefits:

- Homing functionality
- On-the-fly position referencing
- 8 position memories
- Brake control
- Emergency stop sequence and overtravel limit switches

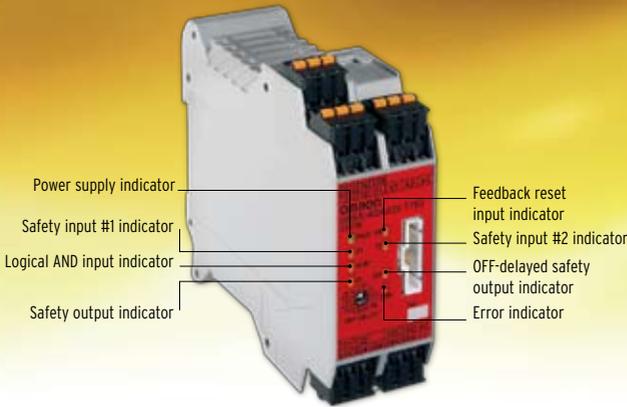
Point-to-point application software



Example of position control software application



## G9SX-ADA – Flexible safety unit



### Features and benefits:

- 1 two-channel safety input
- Up to 3 solid-state safety inputs (instantaneous) and 2 solid-state safety outputs (OFF-delayed up to 15 s or 150 s)
- 1 logical “AND” input for G9SX-AD
- 2 logical “AND” inputs for G9SX-ADA
- 2 logical “AND” outputs
- 2 auxiliary outputs
- 8 LED indicators
- 35 mm wide housing

## The flexible way to design-in safety

Omron’s G9SX is an innovative, flexible safety unit that provides a clever solution for partial and complete safeguarding the machine control. It is now available with an additional advanced unit, the G9SX-ADA. Using microprocessor technology, the G9SX provides a transparent and logical connection throughout your system that enables you to shut down any segmentation according to your machine’s safety layout.

The G9SX increases your productivity by enabling you to isolate a faulty process within your machine instead of having to switch off the entire system, which minimises production losses and downtime. It features LED indicators to reduce troubleshooting time and support diagnostic maintenance. The G9SX lets you expand your system easily without having to completely re-design safety circuits. And while the G9SX uses a hardwired logical connection based on microprocessor technology, there is no programming or special training involved.

The G9SX is the latest segment in Omron’s safety product portfolio and underlines the company’s

reputation as a total safety solutions provider. Use the G9SX to design a flexible, expandable and reliable safety system in all applications like packaging, semiconductor, moulding and food processing industries.

### Basic unit G9SX-BC

The basic unit is used to control the primary safety function like the overall E-Stop.

### Advanced units G9SX-AD and G9SX-ADA

These units can be logically connected to the G9SX-BC and other G9SX-ADs to provide precise shutdown of individual sections in a machine. The advanced units give you more precise control over the safety section you want to stop, without affecting the total process. The new G9SX-ADA offers 2 logical “AND” inputs.

### Expansion unit G9SX-EX

This unit is ideal for use in complex machines that require multiple safety output paths (instantaneous or time delayed).

## ZFV Colour - Smart vision sensor



### Features and benefits:

- Brilliant colour display
- Real-time result and image display
- Intuitive user interface
- One button teach – teach and go
- Up to 8 inspection tools
- Adjustable inspection area and distance
- Integrated, adjustable LED light
- Up to 250 inspections per second

## Easy vision – teach & go

Omron's new ZFV smart vision sensor is an image processing system in a sensor format. It consists of 2 separate components, a camera head with an integrated light source and a processing unit.

The latest addition to the ZFV family is the ZFV colour sensor. Using this instead of the conventional monochrome sensor widens the choice of applications and increases the stability of your inspection.

Through its automatic colour filter function, image contrast is optimised, making measurements more reliable. There are seven colour filters in total; the

one that obtains the most suitable contrast is automatically selected, so there's no need to worry about colour setting parameters.

Parameter settings and lighting control are available at the touch of a button. A "smart" user interface allows parameter setting using a few buttons and the built-in colour LCD monitor.

During operation, the display gives direct feedback showing results and images in real time.

Easy vision – teach & go, for applications which can be solved in minutes – not hours or days.



Hue



Area

Pattern/  
SearchBrightness/  
defect

Character



Position



Edge count



Width



## ZX-T - Smart contact measurement sensor



### Smart tactile measurements - precision at your fingertips

The ZX series SMART sensor offers a unique platform based on different sensing principles. The unique approach to realize inductive, laser measurement and tactile sensors on a modular controller platform enables your application to be realized and set up in a few minutes.

Using digital technology the ZX-T can measure the length, width, thickness, diameter, eccentricity, flatness, inclination and the evenness of an object with a resolution of less than 0.1mm. It is not affected by electrical noise or interference, which makes it a very reliable, accurate, high-performance solution for advanced quality-control applications. In addition, the ZX-T fits seamlessly into Omron's Smart Platform concept, so setting up, programming and operating the product is simply a matter of drag-and-drop via a HMI screen.

Omron expands the ZX-T series with 4 new sensor heads covering a 10 mm measurement range.

#### Features and benefits:

- Flexible position of measurement origin
- Auto scale function
- Min. 10,000,000 operations durability
- Up to 10 mm sensing distance
- Up to 0.1 m resolution



Control the necessary contact force between target and sensor with the vacuum retracting or air lifting function.

With this sensor you ensure the optimum contact force for best measurement results.



Protect fragile surfaces with the ultra low load sensing head. An operating force of 0.065N (6.6g) ensures the soft touch.

## ZS-SW11 E 2.0 - Software for ZS-L series



Multi channel  
Signal monitoring

### SmartMonitor PC tool - ZS-SW11E puts you in full control

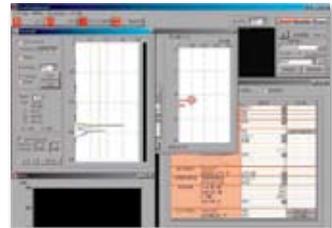
The ultimate tool for easy system set-up, parameter configuration and data logging, the SmartMonitor PC tool offers:

- Up to 9 channels data logging and display simultaneously
- Data logging intervals as short as 2 ms to allow precise monitoring at critical transients
- Export to Excel files is possible
- Macro using filters, slope compensation, filter median transitions, differentiation, integration, math functions and much more.

Use the powerful performance of your ZS-L series measurement application with the comfort of the SmartMonitor PC tool.



Multi channel  
Monitoring and logging



CMOS Sensing performance  
Sensing parameter set up for each channel

## ZS-H - Laser displacement sensor



### Multi-tasking at sub- $\mu\text{m}$ accuracy

Highest demand in quality control can be satisfied by the ZS-H expansion of the popular ZS-L series. The ZS-H controller is capable of running up to 4 measurement tasks in parallel. Solve applications with the unique 1,500 mm sensing head or ensure 0.25  $\mu\text{m}$  precision at 0.05% linearity. You can be confident that the ZS solves your application because this family works reliably on almost all surfaces, from glass and metal to black rubber.



Cleaning of spectacles

#### Features and benefits:

- Long-range sensor heads unique 1,500 mm sensing distance
- Highest precision of 0.25  $\mu\text{m}$  with 0.05% linearity
- Head range includes nozzle gap sensor for leading-edge inspection of moving targets
- Powerful multi-tasking function uses 4 measurement tools in one controller
- Easy to use – built-in user interface and powerful yet friendly PC configuration tool



## E3C-LDA\*\*AT - High precision laser sensor



### Reliable detection with active threshold control

The separate amplifier high-precision photoelectric sensors feature a large variety of different laser sensing heads for highest precision positioning and application detection.

The new ATC function (active threshold control) provides a much more reliable detection due to the fact that the ATC function adjusts the threshold value automatically based on the incident value.

If the incidence value changes because of dust or process influence, the threshold value is slightly readjusted to keep stable sensing conditions. Based on this new technology the E3C-controller can handle small changes during the production process and does not disturb or even stop your process.

Zero defect detection – ensured by the highly reliable ATC function. E3C-LDA\*\*AT saves you time and money.

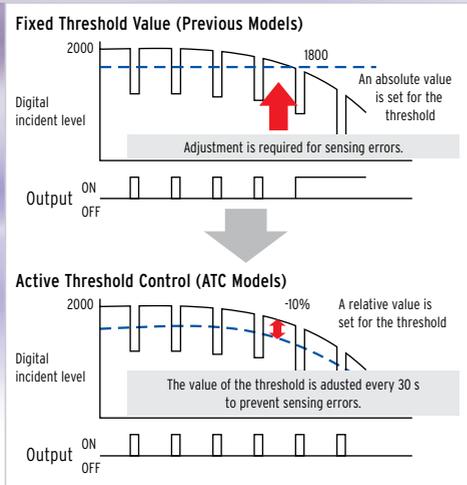
#### E3C-LDA\*\*AN - Analogue output type

- Providing analogue output from 1-5 VDC
- High Precision – 2% F.S.(E3C)
- Meets a wide range of applications

#### E3C-LDA\*\*AT - ATC type (Active Threshold Control)

- Automatic adjustment of threshold value
- Intelligent solution to solve problems caused by dust
- The ATC function adjusts the threshold level of +/- 10 % every 30 s





### Features and benefits:

- Up to 10  $\mu\text{m}$  accuracy
- Easy installation due to adjustable focus point and optical axis
- Wide range sensor head portfolio with different laser beam shapes
- Stable detection of transparent objects such as plastic or glass material
- Controller functions with easy wiring concept and power tuning function

### Ordering information - E3C-LDA-AT

		Model	Digital Fibre Sensors		Separate Digital Amplifier Laser Sensors	
Type	NPN output	E3X-DA11AT-S	E3X-DA6AT-S	E3C-LDA11AT	E3C-LDA6AT	
	PNP output	E3X-DA41AT-S	E3X-DA8AT-S	E3C-LDA41AT	E3C-LDA8AT	
Response time	Super-high-speed mode	Operate or reset: 80 $\mu\text{s}$			Operate or reset: 100 $\mu\text{s}$	
	High-speed mode	Operate or reset: 250 $\mu\text{s}$			Operate or reset: 250 $\mu\text{s}$	
	Standard mode	Operate or reset: 1 ms				
	High-resolution mode	Operate or reset: 4 ms				
Functions	ATC	Active threshold control (used for output 1)				
	I/O settings	The signal that is output can be selected (used for output 2): ATC error output				
	Start-up operation	The operation when power is turned ON can be selected: No operation, PT, or PT + ATC				

### Ordering information - E3C-LDA-AN

		Model	Digital Fibre Amplifier	Photoelectric Sensor with Separate Digital Amplifier (Laser-type)
Type	NPN output	E3X-DA11AN-S		E3C-LDA11AN
	PNP output	E3X-DA41AN-S		E3C-LDA41AN
Analogue output	Control output	Voltage output 1 to 5 VDC (with connected load of 10 k $\Omega$ min.)		
	Repeat accuracy	Super-high-speed mode: 1.5 % F.S.		Super-high-speed mode: 4 % F.S.
		High-speed mode: 1.5 % F.S.		High-speed mode: 4 % F.S.
Standard mode: 1 % F.S.		Standard mode: 2 % F.S.		
High-resolution mode: 0.75 % F.S.		High-resolution mode: 2 % F.S.		
Temperature characteristics	0.3 % F.S./ $^{\circ}\text{C}$			
Response time	Super-high-speed mode	Operate or reset: 80 $\mu\text{s}$		Operate or reset: 100 $\mu\text{s}$
	High-speed mode	Operate or reset: 250 $\mu\text{s}$		
	Standard mode	Operate or reset: 1 $\mu\text{s}$		
	High-resolution mode	Operate or reset: 4 $\mu\text{s}$		



## Increase your machine reliability

Machines that stop during production create high costs. Can producers afford to miss deadlines due to maintenance at the worst possible moment?

- Omron has always been known for continuously producing highest quality products, reducing the need for replacements
- Now, in addition to offering the highest reliability due to 'Designed-to-last' and 'Zero-defect-production', Omron offers additional ways to increase machine reliability

## New releases:

### E3Z Preventive maintenance series

- E3Z-[]J0 – 'Alarm Output' for machine stop, misalignment or sensor defect alarm output if beam interruption is too long
- E3Z-[]G0 – 'Test input' for active sensor check by test input forcing state change at receiver
- E3Z-[]G2 – 'Power intensity switch' for detection of dirt cover on lens
- E3Z-[]H – 'Anti-Tampering' for prevention of setting change by unskilled operators

### E2F-D Anti-microbial Inductive Sensor

- Special housing material actively reducing the number of microbes and bacteria on the sensor
- Reduces the risk of food contamination through bacteria between cleaning cycles



## Additional testing and certifications



### Additional testing and certifications for proven and guaranteed reliability

For our **General-Purpose Line** the following tests and certifications have been added:



New addition to Omron's EMC test standards: 'mobile phone test' to ensure highest reliability next to dialling mobile phones (all products).



IP69k test after DIN 40050: high pressure cleaning at 80°C (Photoelectric sensors E3Z, E3F2, E3NT and Inductive Sensors E2A).

For our **Mobile Usage Line** the following tests and certifications have been added:



30V/m EMC noise immunity (Inductive Sensor E2AU).



IP69k test after DIN 40050: high pressure cleaning at 80°C (Inductive Sensor E2AU).

For our **Food Line** the following tests and certifications have been added:

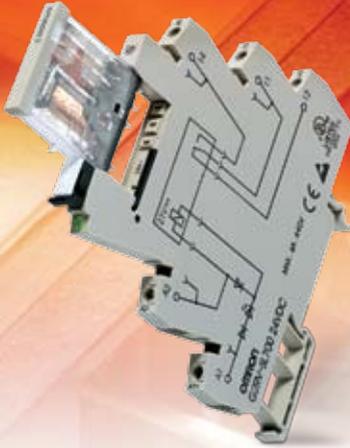


Detergent resistance testing: full immersion and hot foam spraying of commonly used detergents (Photoelectric Sensor E3F2 SUS housing, E3ZM).



IP69k test after DIN 40050: high pressure cleaning at 80°C (Photoelectric Sensor E3F2 SUS housing, E3ZM).

## G2RV - Industrial slim relay



### Features and benefits:

- Strong mechanical pin
- Slim design
- Indication (mechanical flag and LED)
- Screw and push-in terminal
- Max. current 6 A
- Max. switching voltage 400 VAC.

## First 6 mm relay with strong mechanical pins

### Industrial relay re-invented

Invented 80 years ago, the relay is undoubtedly the foundation of modern industrial automation. With such a long history one could assume that the industrial relay is entering its natural phase of decline with market consolidation and product “commoditization”. Wrong! Omron, the pioneer and market leader in the field of modern relay technology, sees industrial relays as one of its core businesses and has heavily invested in developing a revolutionary line of 6 mm plug-in relays suited for industrial automation. “The G2RV is a clear indication from Omron that it intends to play big in this market,” says Boudewijn Hoogma, European Product Manager.

### G2RV likes it rough

With the industrial environment in mind, the G2RV is a real plug-in relay designed with strong mechanical pins that tolerate roughness. Also remarkable is that both socket and relay have been designed from the start as one smart unit, taking into account labelling, marking, and ease of wiring with its push-in terminals.

In spite of its slim design, the G2RV includes all the features of a true industrial relay like mechanical flag, transparent housing, 6 A current and 400 VAC switching voltage, and it sustains an electrical life of 100,000 operations.

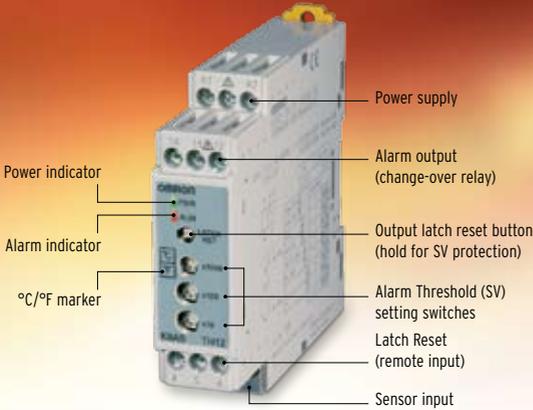
### Family concept

The G2RV comes in 6 different models covering input voltages from 12 VDC to 230 VAC. A wide range of accessories is available, ranging from labels and cross-bars to a PLC interface unit to reduce wiring. The G2RV will expand further to cover more applications and more models.

### Ordering Information Relay / Socket Combination

Input Voltage	Screw Connection	Push-In Terminals
12 VDC	G2RV-SL700-12 VDC	G2RV-SL500-12 VDC
24 VDC	G2RV-SL700-24 VDC	G2RV-SL500-24 VDC
24 VAC / DC	G2RV-SL700-24 VAC/DC	G2RV-SL500-24 VAC/DC
48 VAC / DC	G2RV-SL700-48 VAC/DC	G2RV-SL500-48 VAC/DC
110 VAC	G2RV-SL700-110 VAC	G2RV-SL500-110 VAC
230 VAC	G2RV-SL700-230 VAC	G2RV-SL500-230 VAC

## K8AB-TH - Temperature monitoring relay



### Protect your heating application

The K8AB-TH is a temperature-monitoring relay that embodies both temperature-alarm functionality and simple ON/OFF temperature control. The unit is designed specifically for monitoring abnormal temperatures to prevent excessive temperature increases and to protect equipment. It comes in a slim housing with a width of just 22.5 mm suitable for DIN-rail or direct panel mounting. Settings are selected by DIP switches, making the K8AB-TH easy to configure.

The alarm threshold is set using rotary switches on the front, allowing the alarm point to be easily checked at a later time. The unit features multiple inputs with support for both thermocouples and Pt100 sensors. For the alarm output, a change-over relay is provided and, in contrast to many other comparable monitoring relays, the K8AB-TH also embodies an output latch function with (front button) latch reset, SV protection and the choice of fail-safe/non-fail-safe relay operation.

#### Features and benefits:

- Flexibility: simple and intelligent features for temperature alarm
- Easy to set up, field-configurable DIP switch for multi-input and unit selection
- Space-saving design, compact and slim (22.5 mm wide) DIN-rail & direct panel mounting
- Only 4 application-specific models, high- and low-temperature range, 24 V or 100-240 V
- Change-over type output relay, with or without latching and front button reset
- Self protecting against power or unit failure thanks to selectable relay fail-safe mode
- Clear status indication; 1 LED for power and SV protection, 1 LED for alarm and unit condition

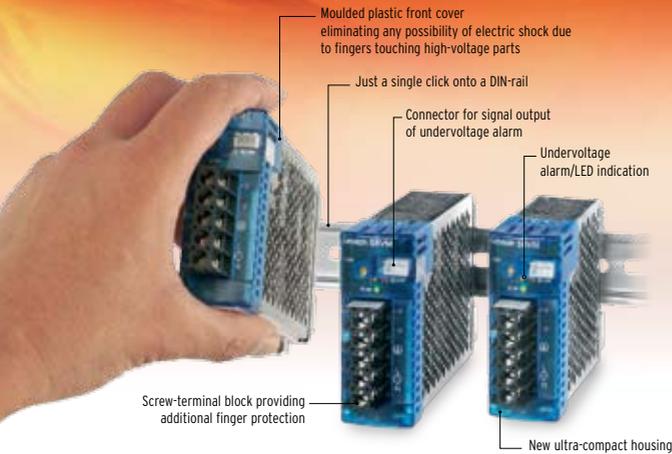


Temperature guard non-latching



Temperature 'policeman' latching

## S8VM - Power supplies



### Features and benefits:

- Timely, efficient on-site troubleshooting for optimum quality management
- New ultra-compact housing supports cabinet downsizing
- Early-warning system
- Easy installation
- Broad product range of DC output voltages from 5 V up to 24 V and in powers from 15 W to 150 W

## The power supply that alerts you

Featuring a new undervoltage alarm with a unique troubleshooting function, S8VM power supplies provide not only a clear indication that a DC output voltage drop has occurred, but also indicate the likely cause – allowing fast, effective corrective action to be taken.

The S8VM series is also designed for direct, easy DIN-rail mounting. And supporting today's trend towards ever-greater downsizing in industrial

equipment, the series comes in a new ultra-compact housing that, depending on output power, can be up to 40 % smaller than conventional 'compact' power supplies.

Excellent reasons then, for choosing Omron's new S8VM power supplies. Designed by Omron to provide optimum quality management of your industrial processes and ease of maintenance.



### Semiconductor wafer production

Semiconductor manufacture demands sophisticated and highly-reliable production machinery to process sensitive wafers and other semiconductor components.



### Continuous production processes

To maintain continuous production processes, any faults in the production equipment must be quickly traced and corrected.



### Robotics in the automotive industry

The fiercely-competitive automotive industry relies on robust and highly-reliable robotic production equipment to guarantee minimum downtime.

## E5CSV - Temperature controller

### The easy way to perfect temperature control

The E5CSV temperature controller series is the enhanced successor to our E5CS series, the most widely sold temperature-controller that has established itself throughout the world as the ideal choice for simple, cost-effective temperature control.

#### Keeping the best...

The new series shares many of the outstanding features that made its predecessor such a success – including easy setting-up using DIP and rotary switches, a large 7-segment LED display and choice of ON/OFF or PID control with self-tuning. What's more, it still provides an indication of output and alarm status and direction of deviation from set point.

#### Enhancing the rest...

Building on the success of the previous E5CS, however, the new E5CSV series offers much more. Like an Auto-Tune function and the fact that as standard you can now select multiple input types (thermocouple/RTD). A new 3.5 digit display also means that E5CSV can show a larger range, now extending up to 1999 °C. The series also meets new RoHS requirements and complies with the stringent IP66 standard. What's more, depth has been reduced to a mere 78 mm.



#### Features and benefits:

- Easy setting-up using DIP and rotary switches
- No expert knowledge needed to optimise performance because of self- and auto-tuning functions
- Meets broad range of basic temperature control requirements with only 4 models
- Reduced change of malfunction thanks to set-value protection
- End-user friendly since the menu only has 3 parameters



#### Packing

Excellent control, especially in this disturbance sensitive application.



#### Frying

The flat front makes the use of the E5CSV hygienic and it is easy and safe to clean thanks to its IP66 rating.



#### Sealing

Clear indication that the correct temperature has been reached thanks to the deviation indicator.

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