

# OMRON

## Product News

Autumn 2005



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**EASY VISION - TEACH & GO**

**CX-One**

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# One software One connection One minute

The launch of Smart Platform, Omron's new fully integrated automation architecture, demonstrates Omron to be one of the most innovative players in the market. Designed to make machine automation easy, the goal of Smart Platform is to allow increasingly complex machines to be developed, commissioned and maintained without the need of automation specialists.

It enables users to mix and match their preferred solutions without the need to worry about hierarchy or other communication issues. Driven by the need

to make connectivity 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 advantages for the user:

- One software
- One connection
- One minute

These advantages are detailed on the next page.



Do you want to know more? For a demonstration and to order your 30 days' trial version for free please visit:

[www.smartplatform.info](http://www.smartplatform.info)

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**CX-One**



**One software for your complete machine**

**1. ONE software**

Omron introduces CX-One, a single programming and configuration environment that enables the user to build, configure and program networks, PLCs, HMIs, motion control systems, drives, temperature controllers and sensors.

The same transparent communications architecture also allows Omron devices to easily communicate together, passing and sharing information and enabling more effective modular machine design.

The result of a single software is to reduce complexity of the configuration and allow automation systems to be programmed or configured with minimal training.

**2. ONE connection**

From a single connection point either locally, through networks or from a modem connection the Omron 'Smart Platform' devices on your machine can be programmed or parameterised. This allows remote access or servicing of your complete machine to become a reality.

**3. ONE minute**

'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 electronic objects of field devices (e.g. 'read actual speed' of an inverter, view a scene from a vision sensor, represent a temperature controller etc.) that can be dragged and dropped into the HMI screen.

**Real examples**

Motion control applications are perceived as being difficult and complex to set up, program and test, as highly skilled people are needed to create simple movements.

	<b>Traditional approach</b>	<b>With Smart Platform</b>
<b>1 Wire up</b>	10 core cable for each axis  2 hours	Simple co-ax connection  1 minute
<b>2 Configure</b>	Different software, cables and connections  20 minutes	Integrated software  1 minute
<b>3 Test</b>	Detailed studying required before operation  3 hours	Pre-made objects to test motion  1 minute
<b>4 Program</b>	Complex ladder code  Xx? hours	Drag n drop standard blocks  1 minute



Easy programming and configuration with Omron's CX-One software.

For a demonstration and to order your 30 days' trial version for free please visit [www.smartplatform.info](http://www.smartplatform.info)

## Get real-time information about:

- Machine productivity
- Line speed
- Efficiency
- Number of failures



## Standardised open access to machine or process data

Today's end-users and machine builders demand more real-time information from their machines or processes. Getting this information from diverse components often results in high software integration costs, from writing tailor-made communication drivers.

Using an OPC\* interface allows users to concentrate on how to use the data rather than writing communication drivers to get the data. Omron's CX-OPC software was developed to comply with the standardised open 'OPC' interface.

\* Object linking and embedding for process control

### Ordering information

Part	
CX-OPC-EV1.21-S	OPC server serial-only single user
CX-OPC-E03V1.21-S	OPC server serial-only 3 user
CX-OPC-E10V1.21-S	OPC server serial-only 10 user
CX-OPC-EV1.21-N	OPC server serial and net-work connection single user
CX-OPC-E03V1.21-N	OPC server serial and network connection 3 user
CX-OPC-E10V1.21-N	OPC server serial and network connection 10 user
CX-OPC-EV1.21-DEMO	OPC server demonstration software



## Smart connection to intelligent Profibus devices

Many advanced machines require specialised and often complex devices from diverse manufacturers to be used to achieve the desired machine functionality. Previously solutions required the use of specific 3rd party stand-alone software to configure, operate and maintain these devices, even when they were installed and working on the same Profibus network.

CX-Profibus, developed and produced by Omron Europe, allows all of this advanced functionality to be included inside the Profibus configuration software using open FDT/DTM\* technology. This technology enables control system manufacturers to provide customers with an optimised display of all functions and data.

\* Field Device Tool and Device Type Manager

### Ordering information

ProductName	Product Description
CX-Profibus	Configuration software for Omron Profibus networks



### Features at a glance

- Easy creation of advanced Profibus networks and support of advanced device configurations
- This software uses a common communications middleware from Smart Platform called CX-Server which enables a single point connection to a complete machine
- CX-Profibus is integrated into Omron's CX-One software, but is also available as a stand-alone tool for configuration of Profibus networks

### Unique:

- Support of both GSD files and DTMs

**CX-Drive****One software tool for inverters and servos**

Reduce the time and complexity of configuring, commissioning and maintaining servos or inverters with a single software tool.

Machines are required to be increasingly modular in order to meet specific customer requirements. This creates a demand on configuration software for servos and inverters to be both flexible and easy to use. To meet this challenge Omron has introduced CX-Drive, a single easy-to-use software for configuring, commissioning and maintaining both servos and inverters.

The complete range of Omron Yaskawa inverters and servos is covered in this software with full access to all parameters (with 3 different operator levels available). An easy overview of parameters includes filters to show values that are:

- Different from default
- Different from drive
- Invalid setting

**Ordering information**

Product Name	Product Description
CX-Drive 1.1	Software to program, commission and maintain servos and inverters

Graphical overviews are available to further assist with configuration of some more detailed parameters such as jump frequencies, v/f profiles and analogue setting.

CX-Drive is integrated into Omron's CX-One software package, and shares the common CX-Server communications middleware functionality from Smart Platform. It is also available as stand-alone software.

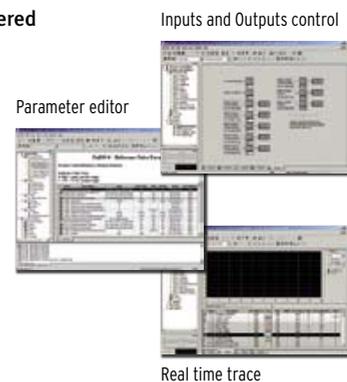
**Products covered**

Inverters:

- V7
- E7
- F7
- L7
- G7

Servos:

- Sigma-II
- SmartStep

**CJ1-CTL41 - Counter unit****Features at a glance**

- 4 encoder inputs
- 100 kHz pulse frequency
- 32-bit counter values
- Linear & circular mode
- 32 comparison values
- Interrupts to PLC CPU
- On-the-fly reconfiguration
- Easy wiring

**Get the right position**

A compact and powerful new counter unit provides easy connection of four incremental encoders to any CJ1 series PLC. Now you can boost the functionality and performance of your CJ1 PLC with the CJ1W-CTL41-E four-channel counter unit. Able to process pulse signals up to 100kHz, the CTL41-E allows count frequencies up to 400,000 counts per second on all four channels simultaneously.

And by internally monitoring the counter values against 32 comparison values, the CTL41-E can also issue interrupts to the CPU for sub-millisecond response in critical applications. With a single CJ1 able to control up to 24 units, the CTL41-E can turn one of the world's most compact PLCs into one of the world's most powerful and flexible machine control systems.

**Ordering information (for the CJ1 encoder input units)**

Model name	Description	Key features
CJ1W-CTS21-E	2-Channel SSI input unit	Fully configurable SSI communication parameters per channel
CJ1W-CTL41-E	4-Channel Counter Unit	100 kHz line driver inputs (or 24V through XW2G terminal block), 32 comparison values, interrupt to PLC CPU
XW2Z-xxxK	Cable for CJ1W-CTL41-E	xxx = cable length in cm (100, 150, 200, 300, 500)
XW2G-40G7-E	Terminal block for CJ1W-CTL41-E	Screwless connection of encoder wiring, 24 V or line driver selection per channel, DIN rail or screw mounting
CJ1W-CT021	2-Channel High-speed Counter Unit	500 kHz inputs (24 V, 5V, line driver), 32 comparison values, 2 control outputs, interrupt to PLC CPU
XW2Z-xxxB	Cable for CJ1W-CT021	xxx = cable length in cm (050, 100, 150, 200, 300, 500)
XW2D-40G6	General-purpose 40-pt terminal block	1:1 connection, 40 M3 screw terminals, DIN rail or screw mounting
CJ1M-CPU21/22/23	2-Channel Positioning CPU	100 kHz inputs, 2 pulse frequency / pulse width control outputs Program memory: 5 / 10 / 20 kSteps Max. I/O points: 160 / 320 / 640 Max. I/O units: 10 / 10 / 20 (with expansion rack)
XW2Z-xxxK	Cable for CJ1M-CPU21/22/23	xxx = cable length in cm (100, 150, 200, 300, 500)
XW2B-40J6-9A	Terminal block for CJ1M-CPU21/22/23	Connection for 2 servo axes including encoders, limit switches and pulse control signals. M3 screw terminals



## Wireless data gathering for factory automation

Within Industrial Automation there are still many cabling issues to be solved, like communication with moving equipment, retrofitting networking on running devices and leaping over an obstacle in a walkway, roadway or waterway. Now Omron provides a simple and reliable solution to solve these issues.

### Key-features at a glance

- One master modem – multiple slave modems
- Relay functionality – communication distance up to 240 meters
- All-in-one unit available with a wireless modem and 16 points digital terminal



### Water treatment application

In a water purification plant or a sewage treatment plant, a remote monitoring equipment system is essential as well as process controlling. wireless communication saves on installation time and cabling cost.



### AGV application

AGVs for parts supplying in assembly lines and sorting in automatic warehouses are typical applications of wireless communication. A PLC or PC can communicate the control data and monitor the operational status for the AGVs.

### Ordering information

Type	Master/Slave	I/O	Accessory
WD30-ME	DeviceNet Master	1600 in/1600 out	Two pencil antenna
WD30-ME01	DeviceNet Master	1600 in/1600 out	Two magnetic base antenna
WT30-M01-FLK	Serial Master	1024 points	No antenna
WD30-SE	DeviceNet Slave	512 in/512 out	Two pencil antenna
WD30-SE01	DeviceNet Slave	512 in/512 out	Two magnetic base antenna
WT30-SID16		16 DC in (NPN/PNP)	
WT30-SMD16	I/O slave	8 DC in (NPN/PNP) 8 transistor out (NPN)	No antenna
WT30-SMD16-1		8 DC in (NPN/PNP) 8 transistor out (NPN)	



## Small, Powerful, Flexible, Economic... NT3S

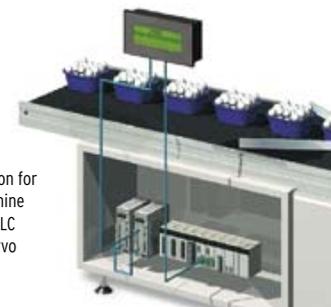
The Omron NT3S terminal is designed to replace mechanical pushbuttons and lamps or text based function key terminals by offering extra functionality, without increasing overall costs.

The NT3S-series offers powerful, free programmable functionality on a small touch screen based user interface. You can create your own "function keys" wherever you want them on your screen and at the same time make use of text in multiple languages. You can also use comprehensive graphics to monitor your application. This product is a step up from our NT2S/NT11S function key series and a step up to our more intelligent NS-series.

### Features at a glance

- 4.1" monochrome STN LCD with LED backlight
- Maximum of two universal (RS232/485/422) serial ports to connect multiple devices with different protocols at the same time
- Drivers for most PLCs, Inverters and Servo Controllers
- Multiple data entry objects per screen with individual limit setting and math operations
- Support for floating point data
- Wizards for rapid application development of standard bitmapped objects
- Real-time and historical alarms (historical alarms in RTC version only)
- Trend graph for defined tags (RTC models only)
- Saves recipes data in non-volatile memory
- Windows® based programming software NT-XS for free!
- IP65 design, CE/cULus Class 1 Div 2 certification (Class 1 Div 2 pending)

A typical application for the NT3S is a machine where an Omron PLC and Intelligent Servo Drives are used.



## Two new 5.7 inch HMI terminals



### 5.7 inch NS available in monochrome and TFT

The NS5-Monochrome and TFT are the latest members of the NS family.

#### NS5-Monochrome

With NS5-Monochrome, Omron is addressing customer demands for more performance without increasing costs for machines. It offers the same high quality and the same features as the rest of the NS-series, ranging from 5.7" to 12.1":

- 5.7" STN Monochrome screen
- 320 x 240 pixels resolution
- 16 shades of grey to express a high amount of image detail
- The highest amount of memory in the market (20 MB in all NS screens)
- Easy integration with Omron PLCs and Field Devices by our Smart Active Parts

#### NS5 TFT

The NS5 TFT is adding even more clarity and visibility to our 5.7 range of screens. With a field of view of 70 degrees left and right an operator on a machine can read it even when looking at the screen from an angle. With the 30,768 colours you can make the most beautiful applications to make your machine stand out from the rest.

- 5.7" TFT screen
- 320 x 240 pixels resolution
- Long-life backlight of minimal 75,000 hours (less maintenance costs)
- The highest amount of memory in the market (applications are compatible throughout the NS range)
- Easy integration with Omron PLCs and Field Devices by our Smart Active Parts

**On these new products we also offer a unique three years of warranty on parts and repair, to support our claim of having the best, most reliable products in the market!**



#### You will save time with Smart Active Parts

By making use of Omron's unique way to develop your automation solution with Smart Active Parts, you can save many hours on development, downtime, and maintenance. When using Smart Active Parts and combining other products that Omron offers, you can create a reliable and competitive solution for your machine in a very short time.

The NS-series can, for instance, be directly connected to Omron's temperature controllers, and you can configure, commission, operate and maintain them by placing the Smart Active Parts of your choice within a few clicks.

Do you want us to show you how this works? Visit <http://ns.europe.omron.com> for a demo.

#### Ordering information

Product name	Product description	With ethernet
NS5-M000-V2	5.7 inch STN terminal, 320 x 240 pixels, 16 shades of grey, 20 MB memory, Ivory	No
NS5-M000B-V2	5.7 inch STN terminal, 320 x 240 pixels, 16 shades of grey, 20 MB memory, Black	No
NS5-M001-V2	5.7 inch STN terminal, 320 x 240 pixels, 16 shades of grey, 20 MB memory, Ivory	Yes
NS5-M001B-V2	5.7 inch STN terminal, 320 x 240 pixels, 16 shades of grey, 20 MB memory, Black	Yes
NS-NSDC1-V6	NS-Designer, screen designing software, version 6	
NS5-T000-V2	5.7" TFT screen, 320 x 240 pixels, 256 colour (30.768 img. data), 20 MB memory, Ivory	No
NS5-T000B-V2	5.7" TFT screen, 320 x 240 pixels, 256 colour (30.768 img. data), 20 MB memory, Black	No
NS5-T001-V2	5.7" TFT screen, 320 x 240 pixels, 256 colour (30.768 img. data), 20 MB memory, Ivory	Yes
NS5-T001B-V2	5.7" TFT screen, 320 x 240 pixels, 256 colour (30.768 img. data), 20 MB memory, Black	Yes

## VARISPEED E7Z - The pumps & fans inverter



### The E7 inverter expands with IP54 version

Omron's new E7 IP54 solution provides inverter protection from non-conductive dust and water splashes. Now you can install the inverter on walls without the need for extra cabinet space, which saves on volume and costs in the main control panel, and eliminates the need to make difficult EMC and heat-loss calculations for the main control cabinet.

The E7 IP54 gives you the flexibility to install the inverter anywhere, thanks to a very robust metal chassis, a special firmware dedicated to Amps temperature derating, an internal industrial filter with excellent EMC noise immunity, and a special IP54 fan. These features make the E7 IP54 the perfect solution for direct installation close to the motor.

The E7 series also features very advanced PID control, an energy-saving algorithm, and standard accessories such as a PLC option board, communications option boards and software customisation to meet specific applications like pump sequencing.

#### E7 IP54 features at a glance

- Enclosure meets IP54 protection
- Robust chassis thanks to the metal box and screws
- LCD Operator
- Internal industrial filter and special IP54 fan solution provide excellent EMC noise immunity
- 12-pulse input standard > 22 kW
- Energy-saving algorithm
- Special firmware dedicated to Amps derating
- Accepts PLC option for stand-alone station control intelligence
- Standard RS-485 communication – Modbus
- Standard Industrial Fieldbus options available: Dnet, Profibus, CANopen
- Standard HVAC field-bus communications for LonWorks, Metasys, L&S Apogee
- Customised application software



#### \* PLC functionality

By bringing the PLC into the drive you open up new possibilities for your system, including distributed and real PLC functionality, and communications to the host controller when required. You can have a log of energy consumption, alarm history and recipes, and this enables you to analyse the best performance of your application, change the settings depending on needs, and save money in the process.



#### \* Telephone or GSM control

What information do you need on your PC at your office? Energy consumption data, changing set points, receiving alarms and warnings on your mobile phone...



#### \* Remote I/O

This solution gives you the flexibility to install the inverter everywhere and INDEPENDENTLY from the main control thanks to the E7Z family. You can now control up to 256 I/Os via Omron's Compobus/s Network.



\* PLC option board needed



## G9SX – Flexible safety unit



### 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. 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.

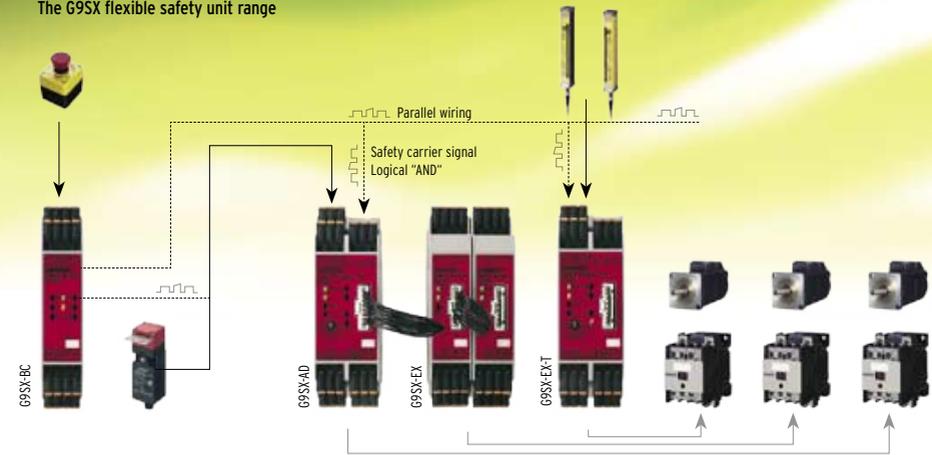
The G9SX is the latest segment in Omron's safety product portfolio and underlines the company's reputation as a total safety solutions' provider. Use the G9SX to design a flexible, expandable and reliable safety system in all applications like packaging, semiconductor, moulding and food processing industries.

#### Features and benefits at a glance

- Unique! Logical connection
- Advanced diagnostics and trouble-shooting functionality
- Extended operating life through solid state outputs
- Expandable with up to 25 outputs per segment
- Choice of terminals
- Meets all safety requirements



The G9SX flexible safety unit range



#### Basic unit G9SX-BC

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

#### Advanced unit G9SX-AD

This unit can be logically connected to the G9SX-BC and other G9SX-AD 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.

#### Expansion unit G9SX-EX

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

#### Ordering information

	Model	Logical "AND" connection	Solid state safety outputs		Safety relay outputs		Auxiliary feedback outputs	
			Instantaneous	Time delayed	Instantaneous	Time delayed	Monitor (X1)	Monitor (X2)
<b>Basic Unit</b>								
Detachable screw terminals	G9SX-BC202-RT	2 "AND" outputs to connect up to 8 Advanced units	2	No	No	No	Yes	Yes
Detachable spring-cage terminals	G9SX-BC202-RC		2	No	No	No	Yes	Yes
<b>Advanced unit</b>								
Detachable screw terminals	G9SX-AD322-TI5-RT	1 "AND" input and 1 "AND" output to connect up to 4 Advanced units	3	2	No	No	Yes	Yes
Detachable spring-cage terminals	G9SX-AD322-TI5-RC		3	2	No	No	Yes	Yes
<b>Expansion unit</b>								
Detachable screw terminals	G9SX-EX401-RT	No	No	No	4	No	No	Yes
	G9SX-EX041-T-RT		No	No	No	4	No	Yes
Detachable spring-cage terminals	G9SX-EX401-RC		No	No	4	No	No	Yes
	G9SX-EX041-T-R		No	No	No	4	No	Yes



## DeviceNet safety offers more than a safe network

DeviceNet is an innovative industrial network system that enables a wide range of devices to be easily networked and managed remotely.

Everything can be seamlessly integrated into DeviceNet, making it one of the best industrial field busses around.

As a founding member of DeviceNet and specialist for machine safety, Omron is one of the few companies with expertise to combine innovative bus technology and safety to a seamless solution up to safety category 4 (EN 954-1) and SIL 3 (IEC 61508).

### Unique features of the DeviceNet Safety products are:

- Test pulse outputs to ensure crosstalk and short circuit detection
- Mixed mode operation of the DeviceNet safety terminals. All inputs and outputs can flexibly be assigned to the safety or standard part of the control system. If they are used for safety, the safety network controller ensures system integrity. Smart slave functions like operation counters and monitoring of ON-time or operation time are fully supported.
- Bulb current monitor function by using a dedicated test output of the remote terminals.

### Safety network controller

The safety network controller hosts the safety application program, monitors the safety inputs and controls the safety outputs.

The simplest DeviceNet safety based solution is using the safety network controller stand-alone.

Advanced diagnostic is provided by the safety network controller. LED displays, status LEDs for all inputs and outputs and the accessibility of the system status data via DeviceNet enables easy troubleshooting and predictive maintenance.

### DeviceNet safety terminals

The DeviceNet safety terminals have been designed to provide the highest flexibility for all your installations.

### Features and benefits at a glance

- Open communication standard
- Fast and easy installation
- Predefined and certified function blocks
- Detachable cage clamp terminals
- Future-ready for easy additions as your needs change
- DeviceNet safety is designed for easy network additions to save your investment
- Smart, seamless and flexible
- I/O-Modules support standard and safety mode on one module
- Reliable and safe
- Predictive maintenance and self diagnosis
- Certified for applications up to safety category 4 (EN 954-1) and SIL 3 (IEC 61508)

### Ordering information

Available DeviceNet safety system components	Inputs (Redundant signals)	Test outputs for Input check	Outputs (Redundant signals)	Order reference
Safety network controller	16 (8)	4	8 (4)	NE1A-SCPU01
Input terminal	12 (6)	4	-	DST1-ID12SL-1
Input / Output terminal	8 (4)	4	8 (4) solid state 0,5 A	DST1-MD16SL-1
Input / Relay output terminal	4 (2)	4	4 relay 2 A	DST1-MRD08SL-1
Configuration software	-	-	-	WS02-CFSC1-E

## ZFV - Smart vision sensor

### Easy vision - teach & go

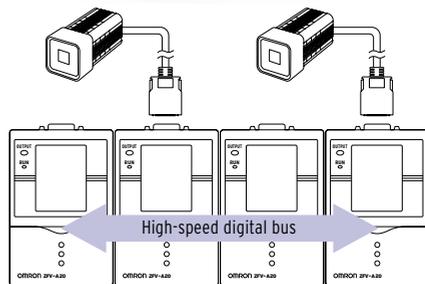
Omron's new ZFV smart vision sensor is an image-processing system in a sensor format. It consists of two separate components, a camera head with an integrated light source and a processing unit.

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.

#### Features at a glance

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



Need to add an inspection to your application? Scale it!  
Just connect up to five controllers/cameras together.



Area      Pattern/Search      Brightness/defect      Character      Position      Edge count      Width



Teach and go...



The ZFV verifies the correct position of the cap to secure proper closure of the bottle.

Verifying the printed article information in a high-speed packaging line.

#### Sensor heads

Appearance	Type	Working distance	Sensing area	Model
	Narrow view	34 to 49 mm (variable)	5 x 4.6 mm (HxV) to 9 x 8.3 mm (HxV)	ZFV-SR10
	Wide view	38 to 194 mm (variable)	10 x 9.2 mm (HxV) to 50 x 46 mm (HxV)	ZFV-SR50

#### Amplifier units

Appearance	Type	Power supply	Output type	Model
	Single function	24VDC ± 10%	NPN	ZFV-A10
			PNP	ZFV-A15
	Multi function		NPN	ZFV-A20
			PNP	ZFV-A25

#### Sensor head and amplifier unit sets

Type	NPN	PNP
Narrow view/single function	ZFV-R1010	ZFV-R1015
Narrow view/standard	ZFV-R1020	ZFV-R1025
Wide view/single function	ZFV-R5010	ZFV-R5015
Wide view/standard	ZFV-R5020	ZFV-R5025

## ZS-L series - 2-D CMOS measurement displacement sensor



### With Omron's ZS-L series, zero defect is assured!

#### Innovative 2-D CMOS technology

The ZS-L's ability to provide high-speed image processing and high resolution is thanks to Omron's innovative 2-D CMOS image sensor. The sensor features an enhanced controller running a powerful algorithm, which ensures optimal sensitivity, no matter how varied the reflected light. The image is processed in the sensor head and transferred to the controller via a Low Voltage Differential Signal (LVDS). This arrangement results in a high-performance platform that can measure almost any surface.

#### Features at a glance

##### Easy to integrate and to operate

- Fast changeover handling for various products on the same production line
- Easy reconfiguration for latest product trends by using ZS-controller HMI
- Get started within a minute

##### More flexibility through scalability

- Tailored ZS configuration to suit your process needs is possible by easy application-oriented and user-guided menu settings
- Additional functionality can be easily expanded by adding additional modules to the high-speed sensor bus

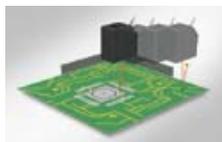
##### Measurement Tools

- Height measurement
- Step measurement
- Thickness measurement
- Gap measurement
- Flatness measurement
- Average measurement
- Excentricity
- Warpage / Evenness

Rubber



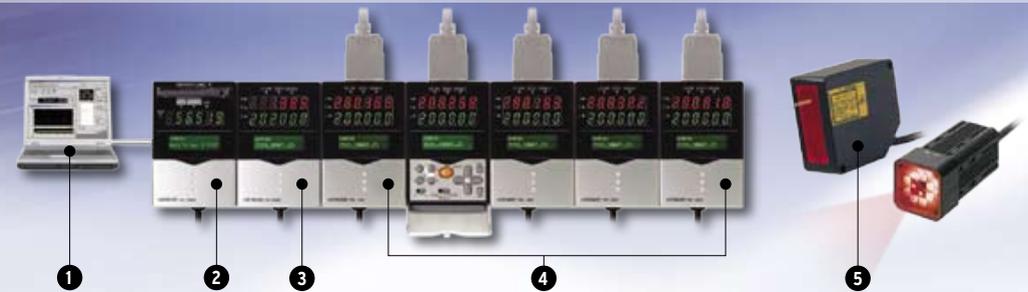
PC-Board



Glass



HDD mirror



#### 1 Monitor

SmartMonitor Professional PC-based user software  
ZS-SW11E - for set up and monitoring

#### 2 Record

Data storage unit ZS-DSU - ideal for ZS series data logging

#### 3 Control

Multi-calculation controller ZS-MDC - enables logical operation and processing for up to 9 gang-mounted controllers

#### 4 Operate

Sensor controllers ZS-LDC - enable maximum sensing performance with fully digital processing

#### 5 See

Sensor heads ZS-LD - advanced laser CMOS sensing technology with high speed, high resolution, packed into smallest IP67 housing

#### Sensor heads

Optical system	Sensing distance	Beam diameter	Resolution	Model
Diffuse reflection	50 +/- 5 mm	900 x 60 µm	0.8 µm	ZS-LD50
	80 +/- 15 mm	900 x 60 µm	2 µm	ZS-LD80
	200 +/- 50 mm	900 x 100 µm	5 µm	ZS-LD200
Regular reflection	20 +/- 1 mm	900 x 25 µm	0.25 µm	ZS-LD20T
	40 +/- 2.5 mm	2000 x 35 µm	0.4 µm	ZS-LD40T

#### Sensor controllers

Shape	Supply voltage	Control outputs	Model
	24VDC	NPN outputs	ZS-LDC11
		PNP outputs	ZS-LDC41

#### Multi-calculation controller

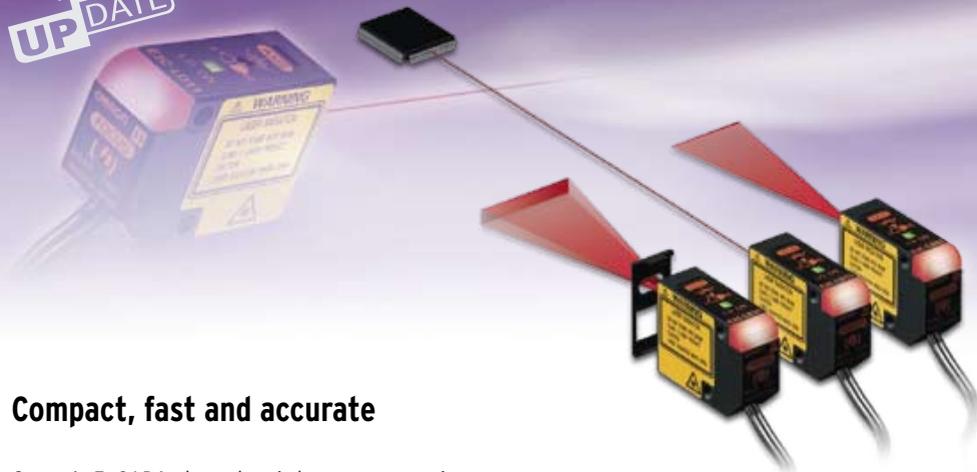
Shape	Supply voltage	Control outputs	Model
	24VDC	NPN outputs	ZS-MDC11
		PNP outputs	ZS-MDC41

#### Data logging controller

Shape	Supply voltage	Control outputs	Model
	24VDC	NPN outputs	ZS-DSU11
		PNP outputs	ZS-DSU41

## E3C-LDA series - Photoelectric laser sensor

UP DATE



### Compact, fast and accurate

Omron's E3C-LDA photoelectric laser sensor series is designed to provide advanced object detection, positioning and high-resolution sensing. What's unique about the E3C-LDA is that the focal point and optical axis on the sensor head can be easily adjusted for precise beam adjustment, which in turn ensures easy set-up and very precise operation from a long distance. In addition, the E3C-LDA series offers multiple separate laser beam types – spot beam, line beam, area beam and retroreflective – to cover a multitude of applications!

UNIQUE

#### Adjustable settings for easy mounting and installation

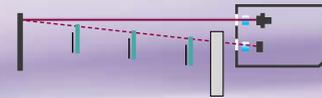
The E3C-LDA is currently the only photoelectric sensor whose focal point and axis can be easily adjusted to provide optimum sensing capability. By varying the focal point mechanism (patent pending) you can adjust the beam diameter to suit the work-piece. This in turn improves the reliability of detection. Varying the axis alignment mechanism (patent pending) enables you to adjust the direction of the beam fan to the mounting surface. This feature is perfect for accurate, long-distance positioning applications.



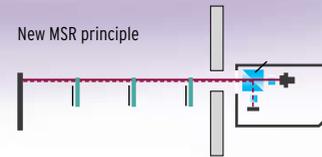
**Variable Focal Point Mechanism**  
The beam diameter can be adjusted to suit the workpiece.

**Optical Axis Alignment Mechanism**  
The direction of optical axis can be adjusted in reference to the mounting surface.

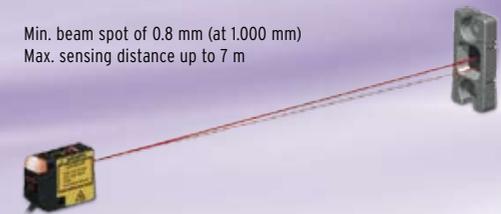
Conventional principle



New MSR principle



Min. beam spot of 0.8 mm (at 1.000 mm)  
Max. sensing distance up to 7 m



UNIQUE

Sensing distance up to 7 meters!

The E3C-LD sensor heads have a detecting distance of up to 1000 mm, while the retroreflective E3C-LR sensor heads a detecting distance of up to 7000 mm by using the reflector. This means that the sensor can be located away from moving parts in a production process and still function with great precision, so installation is fast and easy.

The retroreflective laser sensor has a sensing distance of up to 7 meters. It is also highly precise and easy to set up.

#### Using the new MSR sensing principle

It is ideal for object detection through a small hole or gap in the assembly process. It can also be used for object detection through a glass view port in environmentally harsh processes.

#### Sensor heads

Sensing method	Focus	Model number	Remarks
Diffuse reflective	Spot	E3C-LD11	Mounting a Beam Unit (sold separately) allows the use of line and area beams
	Line	E3C-LD21	This model number is for the set consisting of the E39-P11 mounted to the E3C-LD11
	Area	E3C-LD31	This model number is for the set consisting of the E39-P21 mounted to the E3C-LD11
Coaxial retroreflective	Spot (variable)	E3C-LR11*	Mounting a Beam Unit (sold separately) allows the use of line and area beams
	Spot (2.0-mm fixed dia.)	E3C-LR12*	

\* Select a reflector (sold separately) according to the application.

#### Amplifier units

	Appearance	Item		Functions	Model	Model
		Advanced models	Twin-output models		NPN output	PNP output
Amplifier units with cables		Advanced models	Twin-output models	Area output, self-diagnosis, differential operation	E3C-LDA11	E3C-LDA41
			External-output models	Remote setting, counter, differential operation	E3C-LDA21	E3C-LDA51
Amplifier units with connectors		Advanced models	Twin-output models	Area output, self-diagnosis, differential operation	E3C-LDA6	E3C-LDA8
			External-output models	Remote setting, counter, differential operation	E3C-LDA7	E3C-LDA9

**E2AU & E2AX - Inductive sensors****E3Z - Photoelectric sensors****For machines that never fail - highest reliability assured****E2AU inductive sensor family:****Certified and tested to keep your vehicles moving**

Wheat crops rotting in the fields because your harvester needs a spare part? Garbage piling in the streets because your RCV is not operating? Keep your machines moving with the E2AU.

**Features at a glance**

- E1 type approval (according to automotive directive 95/54/EC)
- EMC noise tested up to 100V/m (ISO 11452-2)
- Oil resistant
- Vibration resistant
- Suitable for high pressure cleaning (IP69k)

**E2AX inductive sensor family:****Highest reliability for explosive environments**

Do you need the high reliability of the E2A inductive sensor family for your dust explosive environments like flour packaging or sawmills?

**Features at a glance**

- ATEX certificate according to EU directive 94/9/EG Appendix VIII Group II category 3D
- Safe in explosive areas zone 22 with non leading dust
- Construction based on EN50014 and EN50281-1-1/2

**E3Z photoelectric sensor family:****New models with preventive maintenance for highest machine availability**

Can you afford to have your packaging machinery stop because your sensor is covered with dirt or somebody accidentally re-aligns your sensor?

**Features at a glance**

- E3Z-[ ]G2 – Emission power reduction active preventive maintenance to detect dirt on lenses
- E3Z-[ ]Jo – Self diagnosis /alarm output passive preventive maintenance to detect mechanical misalignment or tampering

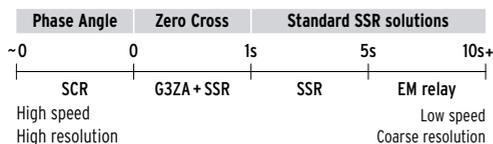
**G3ZA - Multi-channel power controller****A smart approach to fast, low-noise heater power regulation**

The G3ZA is a multi-channel power controller that provides clever switching of up to eight solid state relays (SSRs). It is available in four versions – either with 4 channels (with heater alarm) or 8 channels (without heater alarm), and for high- or low-voltage power supplies.

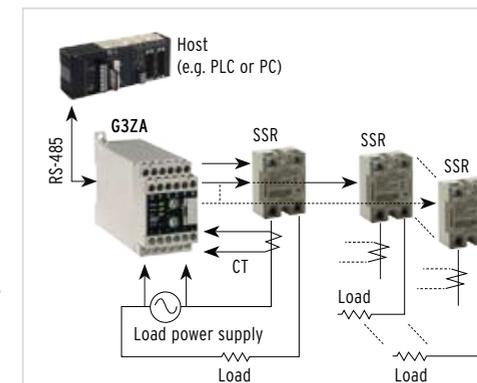
This multi-channel power controller is designed to improve performance of existing heater switching control components while reducing complexity and costs. Install the G3ZA beside a bank of SSRs and reap the benefits of reduced wiring and simplified programming control! The advantages of this distributed control are immediately apparent.

The small-sized unit can control up to eight SSRs with only a single RS-485 2-wire link to the PLC or PC. The manipulated variable control signal (output %) from the PLC is automatically converted into a PWM trigger signal within the G3ZA, so there is no need for an extra conversion unit or digital output cards.

The G3ZA is designed according to Omron's Smart Platform concept for easy integration of components and systems. PLC function blocks are available to significantly reduce ladder programming time.

**Product positioning****Features at a glance**

- Compact size
- Capable of driving up to eight SSRs
- Connects to RS-485 Compoway-F network (ModBus in preparation)
- Better performance with standard SSRs
- Lower noise than with Phase Angle (SCR) control
- Lower peak current when using offset control

**Standard configuration**

## E5\_N series - Temperature controllers

UP DATE



One of the functions is to show the state of the process without the need of value interpretation. When during start-up the PV is lower than SV the display is orange (1), and if the PV is within a pre-set threshold to the SV the display turns green (2). When the PV rises above the threshold, the display colour turns red (3).

### Bringing new dimensions to temperature control

Based on the success of the new E5CN series, Omron has introduced upgrades of the E5AN and E5EN temperature controllers.

Each model's back-lit LCD display gives better resolution and sharper digits with a wide viewing angle. The digits are large, which makes the displayed values easier to read from greater distances. Furthermore, a 3-colour PV display provides green, red and orange characters for clear recognition of the process status. And because the display has 11 segments, the parameter text is easier to read.

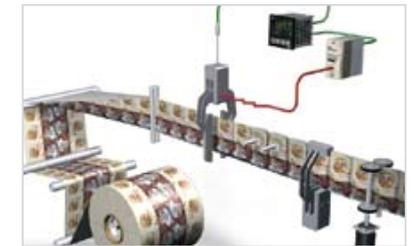
These E5\_N models are easy to install, configure and operate. They provide maximum temperature control performance, thanks to Omron's unique 2-PID control. With standard PID you can choose to tune for best disturbance response or best response to changes in set-point. With Omron's 2-PID you are able to tune the best of both.

These controllers are suited to all general applications. They are designed to live up to the reputation of the previous series as being "simply the best" temperature controllers in the market today!

#### Features at a glance

- High-intensity LCD display with a wide viewing angle
- 3 colour change PV for easy status recognition
- 11-segment display for easy-to-understand text
- Unique 2-PID for optimum control performance
- Easy set-up and operation
- Customisable menus and parameter protection
- PC software tools for parameter cloning, setting and tuning
- Basic (2-step) programmer
- (Partial) heater-break and SSR short-circuit detection system, for 1- or 3-phase configurations
- Loop break alarm and sensor break alarm (with forced MV option)

Packaging application



Baking application



Plastic application



	M	Q	V	W	Z	R
7 Segment	h	9	u	4	3	r
11 Segment	M	Q	V	W	Z	R

The E5\_N series has a clear user interface



## K8 series - Monitoring relays



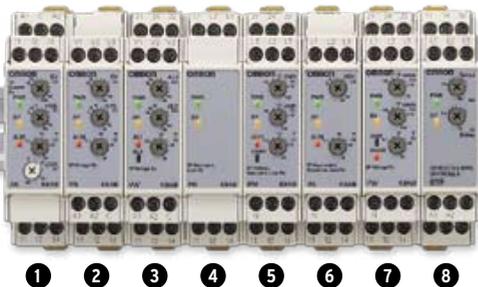
### A complete product range for monitoring requirements!

Omron's K8 series of monitoring products provides you with first-class quality products, all in compact 22.5 mm wide DIN-rail housing! This new monitoring range can be split into models for single-phase current and voltage control, three-phase voltage control and conductive level control.

Designed for use worldwide, they are based on a line of monitoring products that has already given Omron an established and leading market share, especially in Japan.

#### Features at a glance

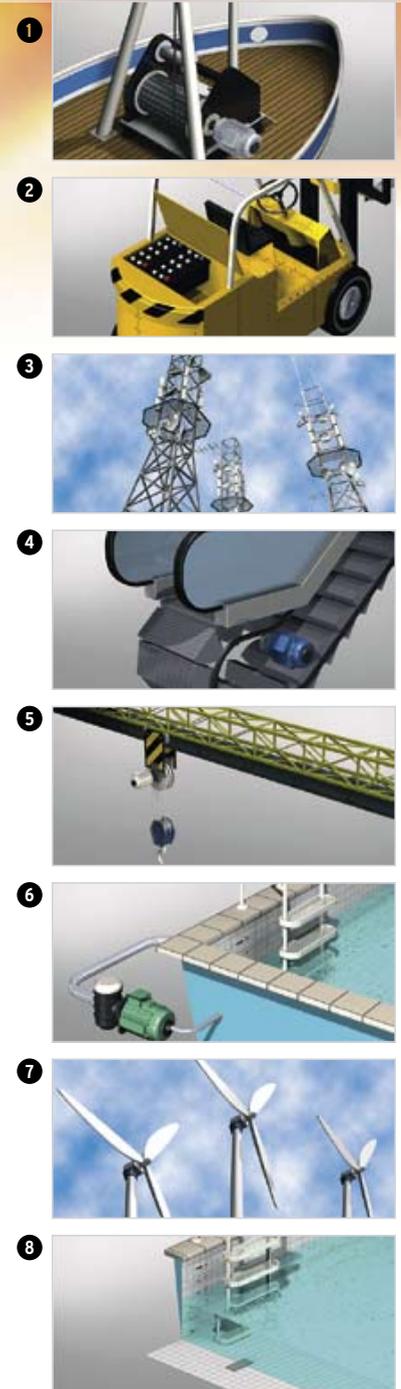
- LED status indication
- Clear setting of SV, HYS, output ON, delay timer and start-up timer
- Compact 22.5 mm DIN-rail housing, with a depth of 100 mm and a height of 90mm
- Space-saving design of K8AB-PA, -PM, and -PW
- Full installation details on side of product
- Configuration DIP switches
- This new range has been certified for CE approval; UL certification is pending



Just eight models make up the range which, together with all of Omron's other products, allows us to offer you a flexible and complete one-stop-shopping solution!

There are many application possibilities for the K8 series. Below you will find some typical application examples for these excellent monitoring products.

- 1 K8AB-AS - to prevent the motor from overloading**
  - A wide current measuring range
  - Selectable reset mode: automatic or manual
  - Adjustable start-up lock-time and alarm delay time up to 30 s
- 2 K8AB-VS - to measure the supply voltage of the battery**
  - Continuous checking of the voltage
  - Input voltage from 6 mV up to 660 VAC/VDC
  - Process signal input from 0-10 V
- 3 K8AB-VW - to prevent communication down-time**
  - Two separate outputs for undervoltage and overvoltage
  - High/high or low/low control can also be selected
  - Selectable manual or automatic reset; selectable start-up lock-time
  - Alarm delay time from 0.1 s to 30 s
- 4 K8AB-PH - to ensure presence and correct sequence of the three phases**
  - Universal input range from 200-500 VAC
  - LED indicators that show power supply/output relay status
- 5 K8AB-PM - to check the condition of the voltage supply**
  - All-in-one configuration
  - Phase-sequence and phase-loss control
- 6 K8AB-PA - to ensure the three phases are present and in balance**
  - Wide setting of the voltages from phase-to-phase (380 to 480 V)
  - Can be used with a three-phase supply with neutral connection
  - Asymmetry alarm delay time from 0.1 s to 30 s
- 7 K8AB-PW - to check whether the supply voltage is correct**
  - 2 separate outputs for undervoltage and overvoltage
  - Wide setting of the voltages from phase-to-phase (380 to 480 V)
  - Can be used with a three-phase supply with neutral connection
- 8 61F-D21T - to maintain the correct water level**
  - Sensitivity setting
  - Charging or discharging
  - Delay timer up to 10 s
  - Safe sensor voltage of only 6 VAC



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