

Product News

2011/2012



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Learn it ONCE
Develop it FAST
Test it as ONE
Secure it ALL



One Machine control

To bring a new level of harmony between people and machines, Omron introduces a new platform in Machine Control: Sysmac. As a major part in Omron's ten-year plan, Sysmac will strengthen a dominant position in machine automation.

With a new machine automation controller (Sysmac NJ), the Sysmac platform integrates: motion, logic & vision.

A brand new integrated development environment 'Sysmac Studio' gives the machine creator total control to configure, program & monitor, and a fast machine network (EtherCAT) connects motion, vision, sensors and actuators. Thus the Sysmac platform achieves accuracy, predictability and the robustness expected from an Omron solution.

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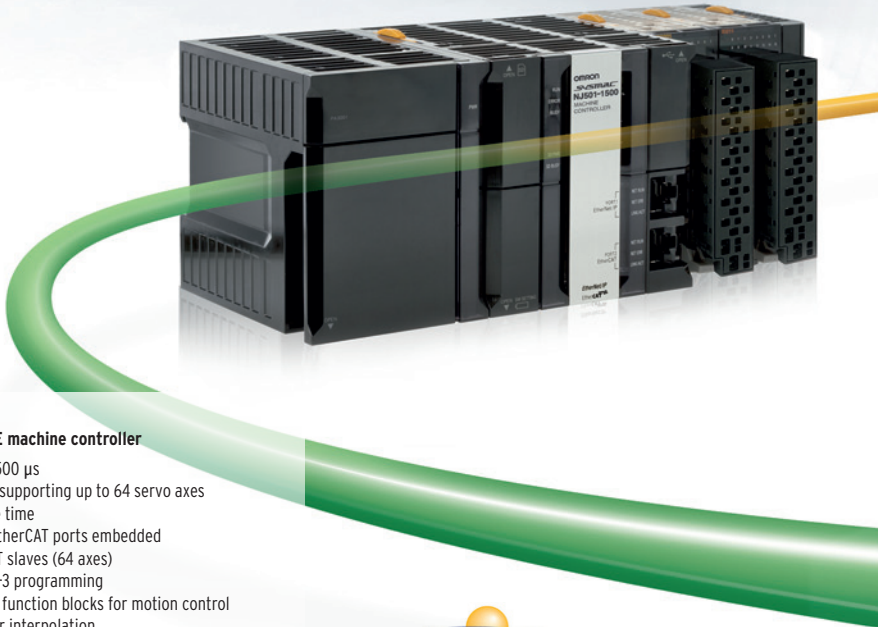
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Sysmac automation platform

One Machine Control

One machine control through one connection and one software is how we define the new Sysmac automation platform. The new NJ machine automation controller integrates motion, logic sequencing, vision and networking under one software: Sysmac Studio. This one software-suite provides a truly Integrated Development Environment (IDE) that includes a custom 3D motion simulation tool. The NJ controller comes standard with built-in EtherCAT and Ethernet/IP. The two networks with one connection is the perfect match between fast real-time machine control and data plant management.



NJ-Series: the ONE machine controller

- Fast PLC tasks in 500 μ s
- Motion controller supporting up to 64 servo axes
- 32 axes/1 ms cycle time
- EtherNet/IP and EtherCAT ports embedded
- Up to 192 EtherCAT slaves (64 axes)
- Standard IEC 61131-3 programming
- Certified PLCopen function blocks for motion control
- Linear and circular interpolation
- Electronic gear and CAM synchronisation
- Works with most of the CJ-Series I/O units
- Global standards CE, cULus, NK, LR



EtherNet/IP: the ONE factory automation network

- Peer-to-Peer controller communication
- Interface with NS HMI series or SCADA software
- Interface to Sysmac Studio

EtherCAT: the ONE machine network

- Up to 192 slaves
- Fastest machine network on the market
- Noise immunity to stringent Omron standards
- Embedded in Omron servo drive, inverter, vision sensor and I/O
- Uses standard STP Ethernet cable with RJ45 connectors

EtherCAT[®]



Accurax G5
servo system



MX2 inverter



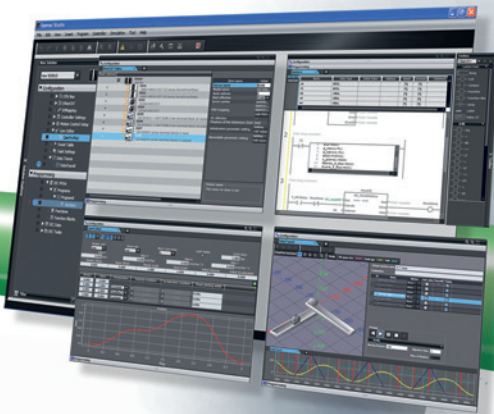
FQ-M vision sensor



SmartSlice I/O

Sysmac Studio: the ONE software

- One design and operation environment for configuration, programming, 3D simulation and monitoring
- Data logging and trending for tuning and debugging
- Supports Ladder, Structured Text, Function Block and in-line ST programming with a rich instruction set
- CAM editor for easy programming of complex motion profiles



TJ2-MC64 Trajexia motion controller with kinematics



Features and benefits:

- Perfect control of 64 axes
- Each axis can be programmed using linear, circular, helical or spherical interpolation, electronic cams and gearboxes
- Control of SCARA and Delta robots
- Multi-tasking controller capable of running up to 22 tasks simultaneously
- Open communication – Serial and EtherNet/IP built-in, PROFIBUS-DP, DeviceNet and CANopen options
- Support for servo, inverter, vision system and I/O in a single EtherCAT network

Total freedom in robotics and motion control

The Trajexia TJ2-MC64 stand-alone motion controller represents the core of this system architecture and is based on the EtherCAT network, providing the highest motion performance for demanding applications.

The centralized motion control system is able to keep control of all motion devices in the machine, including single axis, simple groups of axes and robot control, by providing independent or synchronized movements.

Thanks to a common programming structure, you can control the robot in Cartesian coordinates in the same way as you would program a single axis in the Trajexia. Synchronization with conveyors can be fully programmed thanks to a powerful command developed specially for pick and place applications that use a Delta robot.

RX inverter

NEW RX



Features and benefits:

- Power range up to 132 kW
- Built-in EMC filter
- Sensor-less and vector closed-loop control
- High starting torque in open-loop (200% at 0.3 Hz)
- Double rating VT120%/ 1 min and CT 150%/ 1 min
- Full torque at 0 Hz in closed-loop
- Drive Programming
- Built-in application functionality
- Micro-surge voltage suppression
- Fieldbus communications: Modbus, DeviceNet, Profibus, CompoNet, EtherCAT and ML2

Customised to your machine

Omron realises that you need quality and reliability, plus the ability to easily and quickly customise your inverter to the application in hand. With the new RX, you have the perfect tool for the job.

Drive programming enables you to make your own programs to suit your machine, e.g. for an unwinding application.

Built-in RS485 Modbus communications and the possibility for integration in standard industrial networks, such as DeviceNet, Profibus, CompoNet or EtherCAT, makes the RX ideal for machine integration.



Free to program

Up to 1000 lines of code and 5 tasks running in parallel in 2 programming modes:

- Intuitive Flow Chart programming
- Text Editor programming, including code completion and user defined aliases

LX inverter



Features and benefits:

- Power range from 3.7 to 37 kW
- Current vector control with or without PG
- High starting torque (200%/0.3Hz sensorless vector, 200%/0Hz close loop vector control)
- IM&PM motor control
- Static & rotary advanced auto tuning
- Torque ripple suppression
- Anti-rollback function
- Quick floor operation
- Rescue by UPS or battery
- Safety embedded: IEC 61508 SIL2
- Clock and calendar function
- Silent motor & drive operation
- One parameter dynamic tuning
- Lift language (Hz, m/s, rpm...)
- Built-in logic programmability
- Positioning functionality with 40 floor memory & auto learning
- Dual encoder option board
- Dedicated lift functionality (brake control, lift sequence...)
- CE, cULus, RoHS

Born to drive lifts

Born with Omron's know-how and experience in lift market, the LX is able to control any kind of motor for any kind of lift controller. Designed for more than 5 million starts, it offers all the benefits of Omron's high quality standards, including noiseless operation and energy saving functionality. A built-in clock and calendar ensure silent and efficient control.

Advanced, dedicated lift features include: static tuning, full lift profile control, anti-rollback function, quick floor function, rescue operation, floor position auto learning and drive programming.

MX2 IP54

Born to drive machines

The MX2 IP54 inverter is designed in a robust housing for stand alone installation. Its easy opening cabinet and wiring access make installation and commissioning simple. A built-in class 1 EMC filter and freedom for users to customize their hardware by adding accessories provides the user with hardware flexibility, whilst the Drive Programming functionality embedded within all MX2 units provides application flexibility by adding logic programming within the drive itself, which can be a useful addition when considering decentralized projects.



Features and benefits:

- Power range from 0.1 to 15 kW
- Built-in Class 1 EMC filter
- Ready to add hardware accessories
- USB port for PC programming
- 200% starting torque
- Double rating VT 120%/1 min and CT 150%/ 1 min
- Comms: EtherCAT, Modbus, DeviceNet, Profibus, Comconet, ML-II and EtherNet/IP

SX (400V) inverter with IP54

Force & flow in harmony

Designed to drive any high power application from 0.75 kW up to 800 kW, the new SX series (400V) of compact inverters features embedded application dedicated functionality, plus logic programming and customizable LCD information to give you all the control flexibility required for applications ranging from high torque to smooth flow and pressure control. Housed in robust IP54 cabinets and with EMC C3 Class filters and fuses (from 200 kW) as standard, the SX series protects your process while reducing downtime.



Features and benefits:

- 0.75 to 800 kW
- IP54 full range
- Built-in filter C3 Class
- Safety according EN13849-1 and EN62061 standards
- Load curve control
- Logic programmability
- Encoder, Crane I/O, PTC/PT100 and I/O option boards
- Modbus, DNet and Profibus options
- CE, UL, RoHS, DNV

Your application will look even better

After the NS5 last year, Omron has made the same important improvements to the NS(I)8, NS(I)10 and NS(I)12 HMI series. All colour models now feature an enhanced LCD with LED backlight, resulting in improved brightness and contrast, sharper colours and improved viewing angle from all sides.

With the new LED display, the brightness can now be controlled easily via an internal memory. You can choose from a range of values to balance brightness against the surrounding light. In addition, you can link this memory address to automatically change the brightness at a specific time, or by using a sensor connected to an analogue input.

The CX-One auto-update with CX-Designer v3.3 and higher, supports these new features.

Features:

- Sharp and vivid colours with new LCD
- Improved brightness with LED backlight
- Brightness control function (dimming)
- Ideal for brightly lit environments, for instance outdoor areas



**Features:**

- Ethernet for 3.5 and 5.7 inch
- High brightness TFT LCD
- Improved software
- Model conversion function
- Easy USB file transfer in runtime

Connect, Create and Operate

In addition to the NQ HMI equipped with serial ports, Omron now offers Ethernet connectivity for the 3.5 and 5.7 inch TFT touch screens, which use LED backlight to ensure high brightness and sharp colours. Communication to several Omron PLCs is supported, as is up-/down-loading of project data. Using the default settings like the IP-address, you can immediately connect with Ethernet to quickly download your created project.

The Omron Ethernet FINS protocol even makes it possible to read and write data memory inside the NQ HMI from PC applications so that any data can be shared with ease.

NQ-Designer version 2.0 supports the new NQ HMI with Ethernet and also brings some new functionality, e.g. a function to convert an NQ project from one model to another, thus making it easy to convert an existing project from serial to an Ethernet NQ type with just a few clicks. Other features include improved workspace and easier file transfer to a USB stick in runtime.



Vision portfolio



FL Lighting



FQ Code Reader



FQ-M Vision Sensor



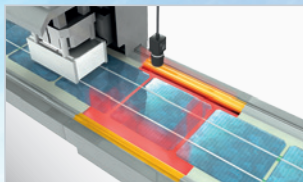
FQ Vision Sensor



Xpsectia-Lite Vision Sensor



FlexXpect Picking



FlexXpect PV



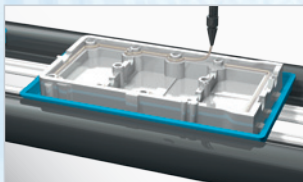
FlexXpect Pharma

Simplicity and intuitive user guidance

Omron offers a complete portfolio of vision solutions. Ranging from application-specific vision sensors up to PC-based vision systems, the portfolio has one common design rule: keep it simple. The built-in monitors or touch screens are easy to use and avoid an additional PC for setting up while delivering immediate feedback on results.

Moreover, users are shielded from the complexity of a vision application by intuitive user guidance that navigates them through the application without the need for expert knowledge on lighting, lenses, filtering, etc.

Xpectia FJ Vision System

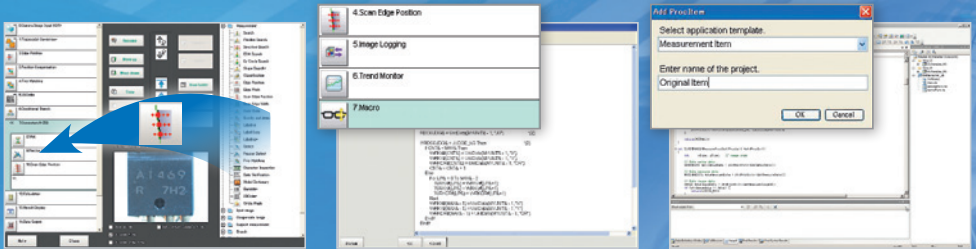


FlexXpect Glue Bead



FlexXpect Labellig

Xpectia FJ vision system



Drag and drop with image processing

You can create new measurement and inspection flows quickly and easily with our ready-made modules. Simply choose from the 60+ modules and drag and drop them to define your required image-input, measurement and other sequences - as well as building your processing flows.

Time-saving Macros

We also offer a wide range of macros to further accelerate your development process - especially for your calculation functions. Simply drag and drop the required macros into your flow.

Own developed algorithms

If the item you need is not included in the new FJ Series software suite, you can easily create your own item using Microsoft® Visual Studio® and the "Application Producer". Creating programs, including those for your GUI, is always quick and simple.

Tailored to your needs

The new customisable Xpectia FJ Series Vision System combines the benefits of a compact system with the power and flexibility of an industrial PC platform. The system will enable you to develop tailored vision solutions quickly, no matter if you are creating a totally new application or modifying an existing one. Start with the proven Xpectia platform and follow our golden rule: configure where you can and program only where you need to. Easy HMI creation, unique flexibility and fast integration define this new class of vision system. The Xpectia FJ Series is available with a range of controllers and cameras, suitable for every application. This eliminates the time needed to integrate components and delivers a platform with the highest quality and reliability.

Highly flexible development

Imagine how much money you could save by reducing your current development time by 50%. With the FJ Series you can do just that. That's because you can build processing flow simply by listing the processing items for each measurement. Other features that accelerate development include: sample GUIs, options to re-use existing software, built-in touchscreens and more.

Proven reliability

All the hardware and software components are completely compatible. In addition, the controllers use flash memory - not hard disc drives - so they always remain highly reliable even in a hostile factory environment.



Features and benefits:

Quick customisation:

- Starting from a complete system
- Fast drag and drop programming
- Choice of ready-made GUIs

Seamless integration:

- Proven component compatibility
- Wide selection of intelligent cameras

Stable, high-speed processing:

- Advanced algorithms
- HDD-less controllers

Stable and high-speed inspection

The Halcon* library of algorithms provides high-speed processing and measurement. In addition, the FJ Series' High Dynamic Range and Real Colour sensing techniques ensure robust and stable operation.



*HALCON is a registered trademark of MVTec Software GmbH.

FQ-M vision sensor

Smart camera to guide your robot!

The new FQ-M series is a vision sensor designed specifically for pick & place applications. It comes with EtherCAT embedded and can be integrated easily into any environment. The FQ-M is compact, fast and includes an incremental encoder input for easy tracking calibration. Omron's Sysmac Studio software is the perfect tool for configuring the FQ-M and is complemented by the TouchFinder console for on-site monitoring.

Easy set-up & integration

With intelligent wizards for calibration and communication integration into your machine is easier than ever. The FQ-M communicates with all devices via EtherCAT, or standard Ethernet. The communication wizard lets you easily configure any robot protocol both as a server or as a client without complex programming.



EtherCAT®



industrial.omron.eu/fqm

Fast detection & high stability

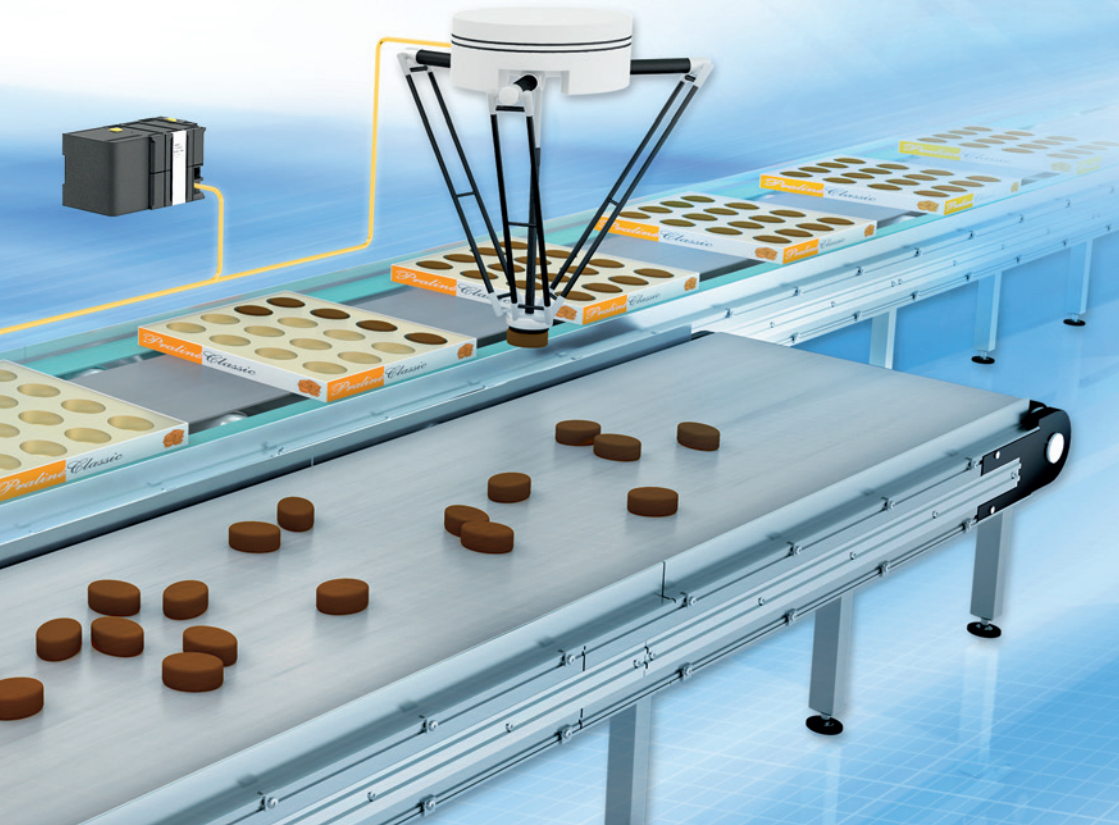
The FQ-M can detect up to 32 pieces at once and more than 5000 pieces per minute. The new contour based search algorithm ensures the highest reliability.

“On-the-fly” tracking

Synchronized control is even easier, because the FQ-M vision sensor has built-in encoder input for accurate conveyor tracking and easy calibration. The FQ-M is able to output position coordinates and the correlative encoder values and is able to manage the object queue, so that no object’s coordinates are duplicated.

Features and benefits:

- Made specifically for pick & place applications
- Encoder input for conveyor tracking and calibration
- Shape based object detection
- Smart calibration wizard
- Sysmac Studio software for vision system operation and setting



FQ-CR1 code reader



Features and benefits:

- One-touch control via simple icon-driven menu
- Crystal-clear image quality
- Real colour processing (16 million colours)
- Operation via PC or handy touchfinder screen

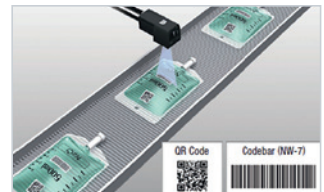
All codes with one touch

The new compact FQ-CR1 code reader from Omron enables accurate, reliable and easy reading of barcodes and 2D codes, thanks to superior crystal-clear imaging technology, which it shares with the other products in Omron's highly regarded FQ family of vision sensors.

Designed specifically for reading codes printed on paper or labels, the FQ-CR1 features integrated high power LED lighting and HDR imaging technology, enabling it to provide dependable code reading even in challenging applications.

It automatically recognises nine different barcode formats and eight different 2D code formats without the need for setting, making it exceptionally versatile and simple to configure.

Four versions are available covering operating distances from 32 mm to 970 mm, and fields of view from 7.5 x 4.7 mm to 380 x 300 mm.



industrial.omron.eu/fq

Xpectia-Lite vision sensor

Features and benefits:

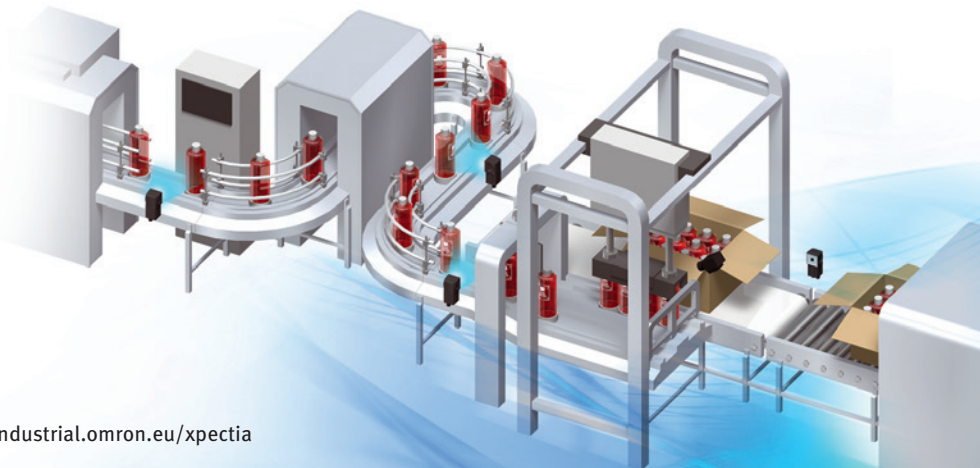
- Crystal-clear image quality
- Real colour processing (16 million colours)
- C-mount and smart cameras
- Ethernet/IP & TCP/IP communication
- Simple and guided set-up
- Reliable results on any surface
- One platform for any application



Simple, flexible & crystal clear

The new Xpectia-Lite integrates the benefits of a smart camera and a powerful vision system in a single platform. The unique image clarity achieved by using an intelligent camera enables simple set-up, fast installation and enhanced optical performance.

In combination with the powerful Xpectia-Lite controller it takes you into a new dimension of image processing. Highest performance, simplicity and unique flexibility are defining a new standard for compact vision sensors.



FL series lighting for image processing

Features and benefits:

- High brightness ODR lighting
- Uniform illumination across a wide field of view
- Easy control and adjustment of the lighting
- Compact design



Omron delivers four times the light required for image processing

Up to four times more light is generated using LED lighting. Our new FL series enable sharp and stable images to be captured by vision inspection systems in even the most demanding of applications.

The new light sources, which feature innovative ODR (optical double reflection) technology, provide powerful uniform illumination over a wide field of view and are complemented by an intelligent lighting controller that makes setting up fast and straightforward.



TechnoGR Safety Service



Services:

- Installation supervision
- Periodic test and inspection
- Machinery risk assessment
- Verification and update service
- Electrical tests
- Definition of products
- Safety components supply
- Machine CE marking
- Training and documentation support

Protect your business with tailored safety solutions

Accidents in the workplace can cause major problems for your business, ranging from possible legal action through to lost production. This impacts on staff morale, corporate reputation and profitability. Omron's TechnoGR Safety Service supports safety over the entire lifecycle of your machines and helps you to protect your business.

Network of specialized partners

In order to offer the full range safety solutions for diverse branches and areas of specialization, Omron works together with selected, accredited system integrators and Omron safety service partners who help you to achieve your safety objectives by providing clear and practical advice.

Single point of contact

TechnoGR Safety Service is your single point of contact, coordinating all the work needed in a project to help you achieve your safety objectives.



E5CC/E5EC temperature controller series



Features and benefits:

- High-contrast, white LCD display are visible from a distance and any angle
- Easy to set up without power supply and operate intuitively via CX-Thermo software
- 50 ms sampling period for fast and precise regulation
- Functions for diagnosis for secure operations (see note 1)

NEW GENERATION

The new standard in temperature control...

Omron has been an active innovator in temperature control since introducing its first temperature controller in 1967. Now temperature control has taken a giant leap forward with Omron's next generation of controllers – the E5CC/E5EC, which set new global standards in the crucial areas of precision, user friendliness and control performance. The E5CC/E5EC series will save you time and effort in setting up and operation, while enabling faster and more accurate monitoring/control of your process. The high-visibility display of the new series is extremely easy to read and virtually eliminates any possibility of human error.

Note 1: Alarm for loop break or PV change rate, heater burnout or sensor burnout detection



industrial.omron.eu/e5cc-e5ec

G3PH high-power solid-state relay



Features and benefits:

- 75 or 150 A; 240 or 480 VAC
- Zero-cross and non-zero-cross models available
- Built-in surge-pass circuit for utmost reliability
- Built-in operation indicator
- Replaceable output module lowers maintenance costs
- Conforms to RoHS and cULus, TUV, CE safety standards

Impervious to power surges

SSRs are known to be susceptible to (power device) damage. Omron has greatly improved the endurance and reliability characteristics. Omron's new G3PH SSR offers the highest resistance to damage even in the most testing situations. A key feature of the G3PH's exceptionally tough performance is an original surge-pass circuit that gives outstanding surge endurance and protects the semiconductor device against surge voltages in excess of 30kV.



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- Human-machine interfaces • Remote I/O

Motion & Drives

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- Counters • Programmable relays
- Digital panel indicators • Electromechanical relays
- Monitoring products • Solid-state relays
- Limit switches • Pushbutton switches
- Low voltage switch gear

Sensing & Safety

- Photoelectric sensors • Inductive sensors
- Capacitive & pressure sensors
- Cable connectors
- Displacement & width-measuring sensors • Vision systems
- Safety networks • Safety sensors • Safety units/relay units
- Safety door/guard lock switches