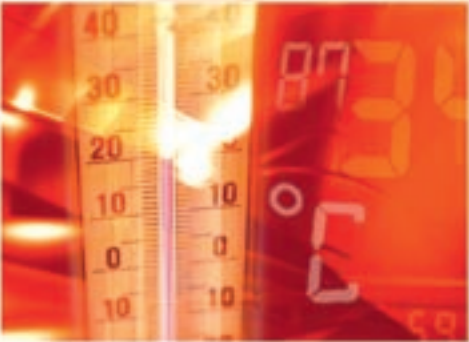


REGULATION SOLUTIONS



Temperature and process control

TEMPERATURE CONTROLLERS
REGOLATORI TERMOREGOLATORI
TEMPERATUURREGELAARS
TEMPÉRATURE RÉGULATEURS DE TEMPÉRATURE
VLÁDACÍ TERMINÁLY
РЕГУЛЯТОРЫ ТЕМПЕРАТУРЫ РЕГУЛЯТОРЫ ТЕМПЕРАТУРЫ
TEMPERATURE CONTROLLERS
REGOLATORI TERMOREGOLATORI
VLÁDACÍ TEMPERATURY
TEMPERATURSÄÄTIMET



Worldwide, every 30 s an Omron temperature controller is sold. 24hrs/day, 7 days/week...

The world's number one in instrumentation for temperature control with global presence and local service



OMRON MAKES ADVANCED TECHNOLOGY SIMPLE!

Analogue parameters such as temperature, pressure and humidity may be simple concepts but controlling them in today's complex industrial processes, which are subject to the constant demand for ever greater process optimization, can be anything but simple. Here's where Omron can help you.

As a specialist in temperature-control and other analogue-parameter-control instrumentation, we are currently the only company offering, a complete range of controllers – from basic, to advanced high-speed, high-resolution multi-loop controllers, right through to fully integrated instruments offering PLC-based process control. All with the emphasis on simplicity.

Simplicity in installation, simplicity in setting up and simplicity in operation.

Don't, however, let this apparent simplicity fool you. With Omron, simplicity is only skin deep. Within their compact, rugged housings, Omron controllers pack some of the world's most advanced technology. Like high-visibility colour-change displays based on LCD technology, and our unique 2-PID that automatically provides excellent control over both disturbance and step response.



COLOUR CHANGE DISPLAY

Leading display technology, providing the user with clear and intuitive information. These Liquid Crystal Displays have a wide viewing angle and are much easier to read from a distance and in all lighting conditions.

Omron controllers also offer a broad choice of networking options to provide versatility in both control and monitoring. While dedicated software with a highly intuitive user interface ensures that installation, configuring and commissioning are as easy as they can possibly be.

All good reasons for choosing Omron. The world's number one in instrumentation for analogue control. With a complete product portfolio meeting all your needs. And with a global network guaranteeing reliable delivery and reliable, personal service anywhere in the world.

Contents

▶ Temperature and process control	4
Product portfolio and positioning	
▶ Basic temperature control	6
K8AB-TH, E5L & E5C2 - temperature monitoring and control	
▶ Basic temperature control	8
E5CSV – The easy way to perfect Temperature Control	
▶ General purpose temperature control	10
E5_N – designed to exceed your expectation	
▶ Advanced temperature and process control	12
E5_N-H - proven concept with process control features	
▶ Advanced temperature and process control	14
E5_R - Fast, accurate and application specific	
▶ Multi-loop temperature control	16
CelciuX° – Control and Connectivity	
▶ PLC based temperature and process control	18
CJ/CS – PLC integrated solutions	
▶ Software and auxiliaries	20
Programming and SCADA software, networking, Sensors and SSRs	
▶ Scalable automation	22
Integration of temperature controllers	

Fully integrated



CJ1W-TC



CelciuX°



E5_N



K8AB-TH, E5L-C, E5C2



E5CSV

Stand alone

Basic

General purpose

Basic solutions

Where simple, discrete temperature control and monitoring are required, our K8AB-TH, E5L, E5C2 or E5CSV controllers offer the best solution. The units offer basic control functionality: temperature alarm, simple ON/OFF control or single-loop PID control.

Typical applications:

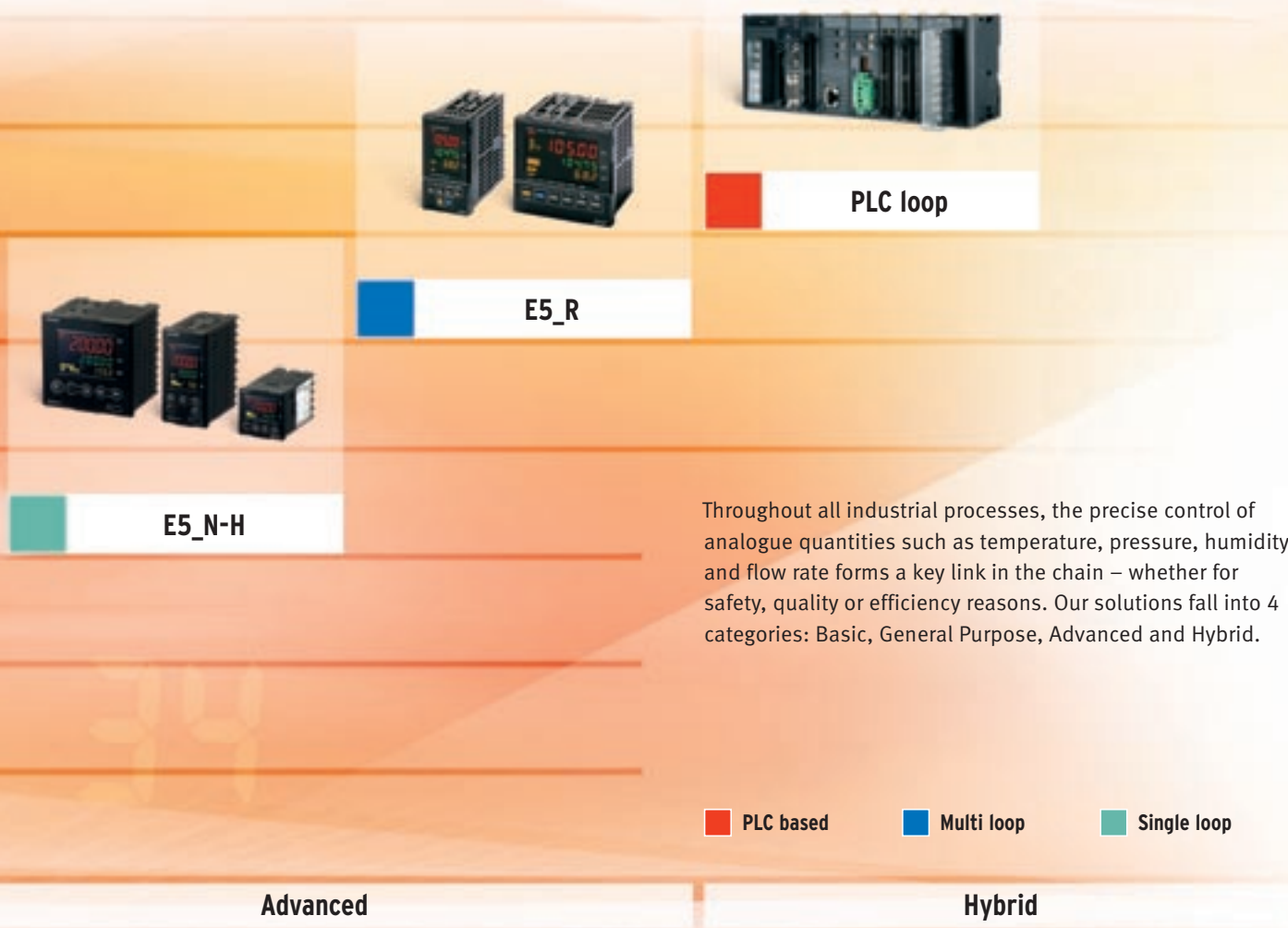
- Protection of your heating application
- ON/OFF boiler heating control
- Frying and baking
- Sealing and other packing applications

General Purpose solutions

For the majority of control applications, you'll find the ideal solution in our E5_N series, available in 4 DIN sizes. As in-panel model we offer CelciuX° and all these instruments offer reliable control even in the most challenging environments.

Typical applications:

- Packing applications
- Plastic forming and moulding
- Laboratory and ceramic ovens
- Reflow furnaces



Advanced solutions

For demanding applications that require flexibility in inputs and outputs, programmable control and networking capabilities, you can choose from our range of advanced single-loop and multi-loop solutions. These include the single-loop E5_N-H series and the single- & multi-loop E5_R series.

Typical applications:

- Heat-treatment ovens
- Processing food and beverages
- Autoclaves and sterilizers
- Automotive and semiconductor

Hybrid solutions

Since sequence-based systems must regularly provide some degree of analogue loop control as well, it is often desirable to integrate the analogue loop in the PLC. To meet this need, we've combined our know-how to produce a range of hybrid solutions.

Typical applications:

- Packaging and plastic machinery
- Water treatment
- Wine-making plants
- Climate chambers

EASY INSTALLATION AND OPERATION

The K8AB-TH, E5L and E5C2 provide the perfect solution for basic applications including alarm monitoring and simple ON/OFF or PD control.

K8AB-TH – protect your heating application

The K8AB-TH is a temperature monitoring relay that is designed to protect equipment against abnormal temperatures. It comes in a slim 22.5 mm housing suitable for DIN-rail mounting. It's easy to set-up; functions are set by DIP switch, and the alarm threshold by rotary switches on the front. The unit features multiple inputs and a change-over relay for the output. The K8AB-TH also embodies output latch, SV protection and fail-safe operation.

E5L- ideal for simple build-in control

This compact ON/OFF controller is provided with a sensor and is available in an analogue or digital version. Mounting is in-panel with a standard socket. Available in 4 setting ranges and all with a powerful 10A/250Vac output relay.

E5C2 – it can't get easier

The E5C2 compact temperature controllers provide ON/OFF or PD-control. The family offers a choice of type J or K thermocouple, PT100 and thermistor inputs, and relay or voltage (pulse) outputs. The E5C2 allows for DIN-rail and front-panel mounting – just choose one of the available 8-pin plug-in sockets.



▲ Prevent overheating in cabinets

Due to the heat dissipation of the SSRs the temperature in the cabinet can rise above the temperature where efficient operation is guaranteed. The simple ON/OFF control of the E5L can protect against overheating without the necessity and expense of running the fans continuously.



▲ ON/OFF

Hot water supply provided by a boiler can be simply controlled with an E5C2. The water temperature is set by the big and easy to operate dial on the front of the controller.



E5C2, E5L benefits

- Reduced engineering time and costs
- Easy to operate with analogue setting dial (E5L-C with up/down key)
- Choice of ON/OFF or PD control models (E5C2)
- Easy to see output operation with LED indicator
- High power switching up to 10A (E5L)



▲ Protect your heating application

If a temperature sensor is damaged or the SSR is short circuited in a furnace, the controller has no means of stopping rises in temperature. An internal alarm can help, but there is still some risk if the controller fails. This risk is eliminated by building a redundancy with the K8AB-TH alarm unit which can automatically switch off the power to the furnace.

K8AB-TH benefits

- Easy to setup, field-configurable dip switch for multi-input and unit selection
- Only 4 application-specific models, high- and low temperature range, 24 V or 100-240 V
- Slim, compact (22.5 mm wide) space-saving design, DIN-rail and panel mounting
- Change-over type output relay, with or without latching and front button/external reset
- Self protection against power or unit failure thanks to selectable relay fail-safe mode
- LED alarm indicator for alarm and SV-protection status

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. The E5CSV series: perfect temperature control in 4 simple steps.



- ▲ **Intuitive operator guidance**
Clear indication that the correct temperature has been reached thanks to the deviation indicator.



- ▲ **Speed-up your line**
Excellent control, especially in this disturbance sensitive application.



- ▲ **Usage in harsh environment**
The flat front makes the use of the E5CSV hygienic and it's easy and safe to clean thanks to its IP66 rating.



E5CSV benefits

- Easy setting-up using DIP and rotary switches
- Meets broad range of basic temperature-control requirements with only 4 models
- No expert knowledge needed to optimise performance because of Self- and Auto-Tuning functions
- Reduced chance of malfunction thanks to set-value protection
- End-user friendly since the menu only has 3 parameters
- Clear status overview thanks to PV-SV deviation indicator, output and alarm indicator
- Easy connection to a broad range of temperature sensor types

220 VAC		24 VAC/DC	
Relay output	Voltage (puls) output	Relay output	Voltage (puls) output

Ready...

1. Select
4 models only

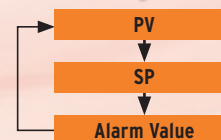
Set...

2. Set up
Function, input and alarm type are easy set by dip and rotary switches

3. Mount

...Go!

4. Adjust
Only 3 parameters



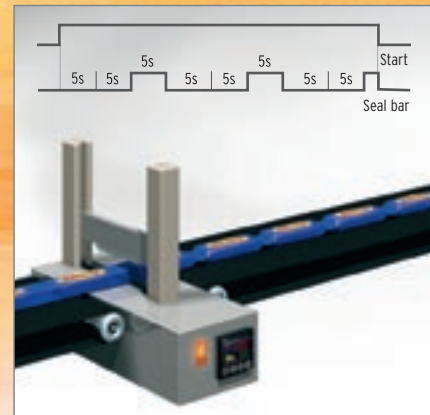
▲ Perfect temperature control in 4 simple steps

DESIGNED TO EXCEED EXPECTATIONS

The E5_N single-loop series is the ideal choice for the majority of general analogue control applications. The instruments are exceptionally easy to use and to configure for optimum control. Not surprising then that they are currently the most popular controllers in the world.

To meet the challenges of operating in an industrial environment, all products in the E5_N series feature a large high intensity back-lit Liquid Crystal Display with a wide viewing angle. This makes the display much easier to read from a distance and in all lighting conditions. What's more, the sharp 11-segment digits make parameter text much easier to understand.

The series also features a 3-colour-change PV display, providing operators with easy recognition of process status. Installation, set-up and operation couldn't be easier with the front panel keys and the clear and structured menu. A customisable menu-setting facility allows the instrument to display only the parameters of interest and hide the others to reduce possible operator confusion. The instruments can also be set-up using a PC with our Windows-based configuration and tuning software CX-Thermo. Moreover, our ThermoMini cloning software (available free) enables you to program the same parameters into multiple units.



▲ PV colour change

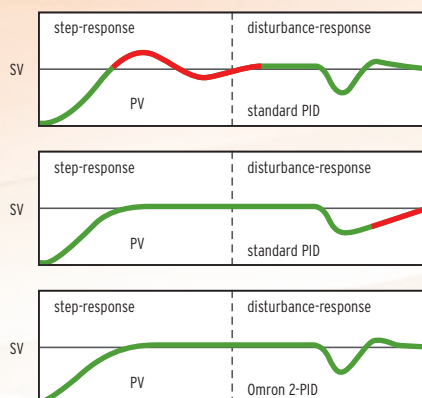
This provides crystal-clear process status, even from a distance and without the need for interpreting the values. When one of the heaters is not at set-point the PV can change colour to alert any member of staff (detecting a bad sealing at an early stage, for example).

▲ Basic (2-step) programmer

In many thermal processes (food, brick, pottery etc.) a small element of timing is required. This feature enables you to ramp up to a set-point and set the dwell time period. At the end of this time, the process stops or continues with an indication alarm to alert the operator. With this feature, a fixed minimum or maximum curing/baking time is assured.

▲ Customizing with Logic Operations

With Logic operations you can have your timer inside the temperature controller. The logic operates the closing, hold and opening of the Sealing Bar.



▲ Omron innovation: 2-PID Control

2-PID control is an important advance on standard PID control. 2-PID control uses a powerful algorithm that enables the instrument to be tuned for optimum disturbance response without any compromise on the speed of reaction to changes in set point. The best is that the user doesn't have to take any special action. All our instruments are factory preset with a default setting, suitable to give fast responses with minimal overshoot. This means faster start up production times and much more stable control during production leading to better quality products.

E5_N benefits

- Excellent visibility – in all lighting conditions – thanks to high-intensity Liquid Crystal Display with wide viewing angle
- Optimal status recognition with 3-colour-change PV display
- Clear diagnostics and extended process and heater alarm strategies
- Exact control with Omron's unique 2-PID system
- Easy set-up and operation through the front keys or with intuitive, Windows-based software tool
- Highest application security thanks to password protection and customisable menus
- Logic operations to combine any internal flag, status or alarm into a logic strategy, customize your application

PROVEN CONCEPT WITH PROCESS CONTROL FEATURES

The E5_N-H series is taking the proven features of the E5_N series to process control level.

The same menu structure ensures that installation and operation is just as easy. But accuracy, speed and process control features are improved. In short, the process specifications of the new E5_N-H provide you with the flexibility that gives applications that special edge.

Available in 1/4 DIN, 1/8 DIN and 1/16 DIN, the series features a universal input, configurable for temperature and process signals. To provide flexibility the 1/4 and 1/8 DIN units have replaceable output modules. For all models optional modules are available supporting serial communications for data-exchange, programming or commissioning.

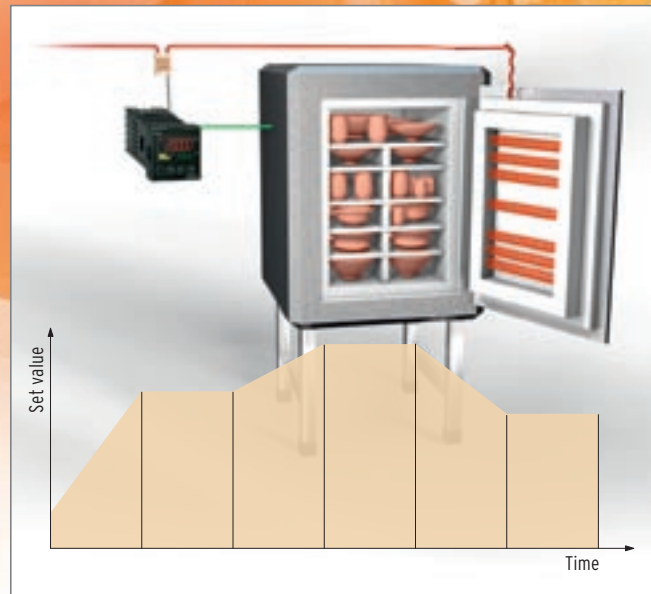
Standard control functions are supported by two levels of auto-tune, plus self-tune. In addition, remote setpoint, transfer output and one and three phase heater alarm options are available. Further the E5_N-H holds 8 Banks, each able to hold various parameters like PID, alarm thresholds and setpoints.

The range is completed by dedicated valve driver units for controlling motorised valves plus a 'set-value in time' profiling model.



▲ Valve applications

Precise valve control is possible with or without potentiometer feedback. To connect differential pressure flow meters, square root extraction is possible on the input.



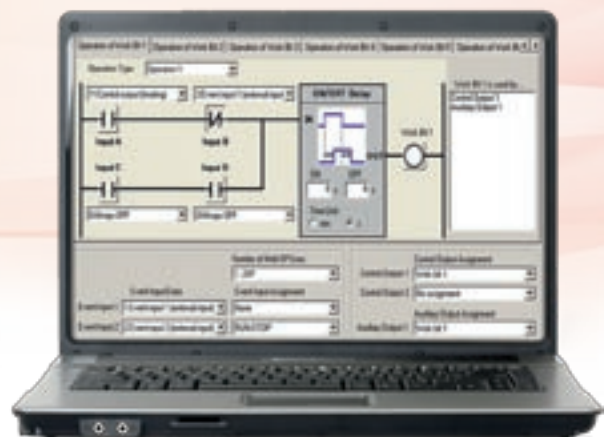
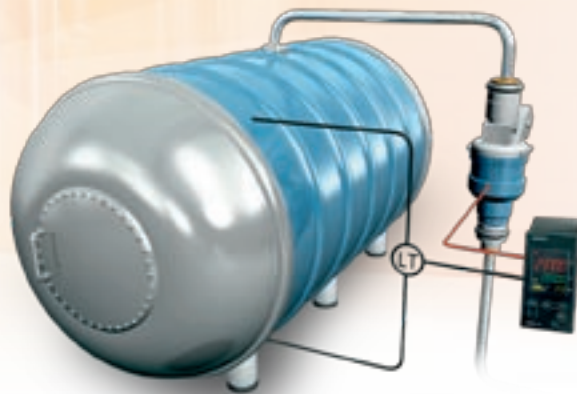
▲ Time based process applications

Banks are used to hold PID and alarm values. The banks can also hold soak times as another way to create an SV program.



E5_N-H benefits

- * Same easy and intuitive menu structure as E5_N series
- * Fast (60ms) and Accurate (0,1%PV)
- * Flexible connection to any sensor or actuator thanks to the Universal inputs and modular outputs
- * Setpoint profiles and recipe support with parameter banks
- * Valve Control with or without hardware feedback



▲ Customizing your application with Logic Operations

The E5_N(H) series have 8 logic registers to perform logic switching. It is much like a PLC ladder. The feature logically calculates (0/1) the status of Alarms, RUN/STOP, auto/manual, event inputs and control/alarm outputs to a Work-Bit. Additionally the calculation-results can be delayed or inverted. The work-bit status can be 'send' to auxiliary/control outputs or can be used to switch an operating status.

FAST, ACCURATE AND APPLICATION SPECIFIC

The E5_R series combines high performance with advanced features that include multi-loop control of process parameters such as temperature, pressure and humidity. The series is characterized by high accuracy combined with exceptionally fast sampling and control update time. Optionally E5_R offers a multi channel „programmer“ to change set values in time.

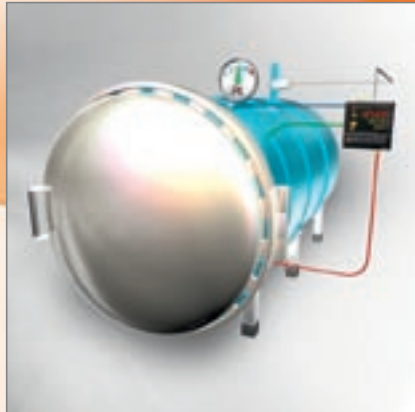
The series comprises two types: 1/4 DIN (96 × 96 mm) E5AR in 1-, 2- and 4-loop models and the 1/8 DIN (48 × 96 mm) E5ER in 1- and 2-loop models. Various control modes can be selected, including heating/cooling control, valve control, cascade and ratio control.

As with all Omron's analogue control instruments, configuring the E5_R series is simple. Initial settings can be performed easily, either via the buttons on the front panel or via a PC with Omron's CX-Thermo software that allows full parameter setting, saving and cloning for repeatable configurations.

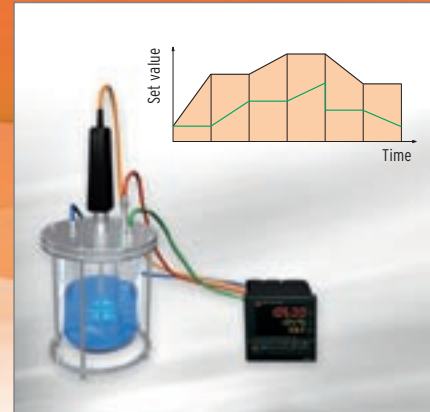
As well as the universal inputs and various control outputs, the instruments can easily be configured for external control using various I/Os. These include up to 6 event inputs, up to 2 transfer outputs plus auxiliary outputs for alarm signals. Serial communications enables sharing of data with a master through CompowayF or Modbus. DeviceNet integrated models are also available, as are models capable of connecting to a Profibus network via Omron's Intelligent Gateway.



- ▲ **Mixing two flows: Ratio Control**
Used in applications where a secondary flow needs to be mixed in an exact ratio to the main flow, as in colouring paint, mixing yoghurt with jam and chloride with water.



- ▲ **Temperature and Pressure interaction in an autoclave**
Sterilizing products at high temperatures under pressure demands a fast and accurate controller like the E5_R.



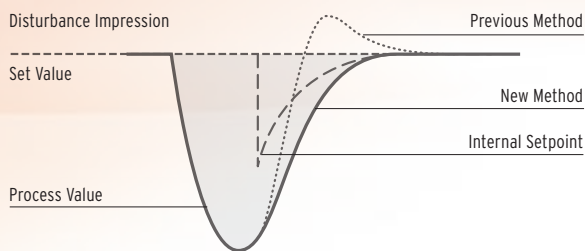
- ▲ **Controlling a processing vessel**
In a fermentor, tight control over all the parameters such as temperature, pH, level and/or pressure is essential for a good product.



MODBUS

PROFIBUS

DeviceNet



Advanced disturbance control technology provides outstanding suppression of overshoot.

▲ Advanced disturbance control

Many manufacturers claim their products offer overshoot reduction after a disturbance. Omron, however, has the technology to provide complete control of PV overshoot. Our E5R model and CelciuX^o have the advanced system called ADO (Adjustment of Disturbance Overshoot) that infers the disturbance automatically without the need for an additional sensor, and takes the appropriate action whether overshoot is needed or absolutely not allowed.

E5_R benefits

- Easy and clear read-out thanks to bright Liquid Crystal Display
- High accuracy (0.01 °C with Pt100)
- Fast response – 50 ms input sampling and control update for all 4 loops
- Exceptional versatility – multi-loop control, cascade control, and valve control
- Easy integration with DeviceNet, Profibus or Modbus
- SV programmer (max. 32 programs with max 256 segments total)

CONTROL AND CONNECTIVITY

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

Starting with one end unit (EU), up to 15 basic temperature control units can be added. With multiple EUs, expansion up to 250 loops is possible, even with distributed placement. PC software makes it simple to set parameters and to copy the same parameters in multiple units or to duplicate systems.

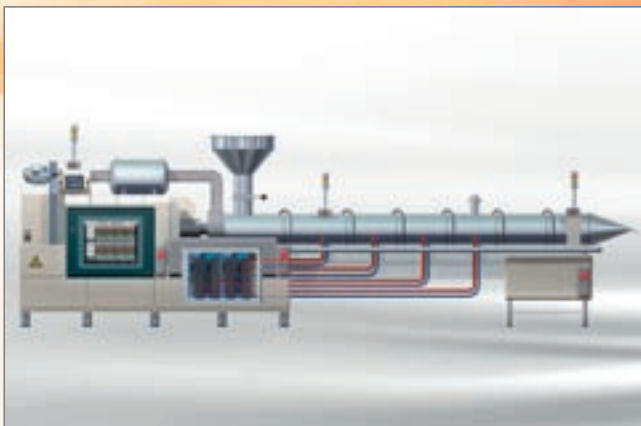
Control

The 2-PID control algorithm (see page 11) and our reliable auto-tuning algorithms reduce commissioning time. CelciuX^o also offers special algorithms and strategies like GTC (see page 17), Heat&Cool with dual PID set, or reduce peak currents with output-on scheduling.

Connectivity

CelciuX^o and Omron's "Smart Platform" offers complete machine automation from one single connection and software. The Smart Active Parts Library provides functional graphical objects for OMRON's NS-series HMI and a library of smart function blocks for PLCs is available.

A wide range of industrial fieldbus connections is possible from Modbus to Profibus. With the addition of the HFU it is possible to connect the CelciuX^o to Omron or 3th party PLC without programming the communication protocol. The CelciuX^o acts as a master and push&pulls the data into the PLC memory area, ready for the PLC to use.



- ▲ **Multi-loop machine control with HMI**
Control, overview and data-logging couldn't be easier with the CelciuX^o in combination with a direct connection to Omron HMIs.



- ▲ **The perfect solution for multi-loop control**
Reliability, compactness and uncompromising control performance make the CelciuX^o the perfect choice for basic multi-loop control.



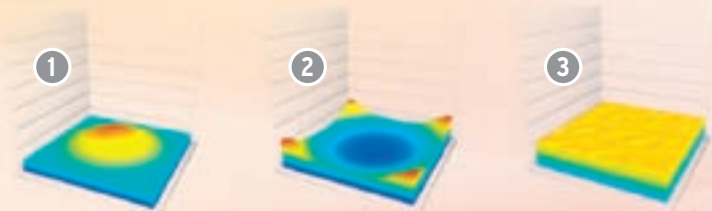
Celciux° benefits

- Interfaces to a wide range of industrial networks
- Reduces engineering due to Program-less Communications, Smart Active Parts and Function Block Libraries
- Available with screw terminals and screw-less clamp terminals
- Up to 250 loops, optional with distributed placement
- One unit handling various types of input, such as Pt, thermocouple, mA, and V input
- Gradient Temperature Control
- Heat & Cool autotuning (dual-PID set)



With GTC you can choose either to:

1. Force fast heating from the inside
2. Force fast heating from the outside
3. Force temperature uniformity



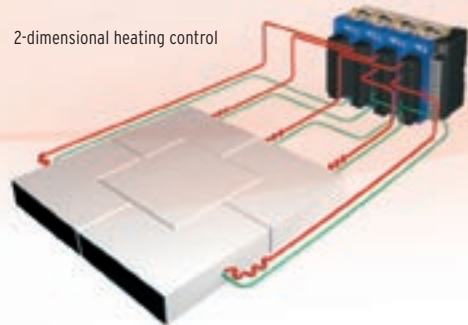
Without GTC



With GTC



2-dimensional heating control



▲ Precise control of 2D temperature profiles

Gradient Temperature Control (GTC), Omron's unique loop-interacting PID control technology, ensures that a 2-dimensional temperature profile remains constant over a defined area, eliminating the damaging effect of hot spots on sheets of materials such as metal, glass, plastic or silicon wafers. GTC makes it possible to control the exact shape of the temperature profile at any position.

PLC-INTEGRATED SOLUTIONS

Omron has combined its know-how both in discrete temperature control and sequence based PLC systems to produce a range of integrated control solutions from PID ladder instruction right up to high-end analogue loop control. Besides the powerful PID ladder instruction with auto-tune for our PLCs for dedicated temperature control, you can choose Omron's CJ1W-TC series. Based on our successful E5_N series, these temperature control cards for our CJ1 PLC provide PLC-integrated temperature control with no compromise on performance. And to simplify control-loop operation and reduce engineering time, Omron provides PLC Function Blocks to easily access all controller data in the TC card.

In addition, our innovative CJ1 hybrid CPU range integrates high-speed sequence and advanced analogue control in a single unit. Omron's CX-Process configuration tool uses Function Block programming to enable you to build your own control strategy. Clear commissioning windows help to adjust and tune the loops. Moreover, at the press of a button, you can automatically create controller faceplates for Omron's NS-series HMI. Providing the same benefits and features, Omron's CS1 PLC series offers a similar solution as the CJ1 series, but for even bigger systems and, if required, with dual-redundant CPUs.



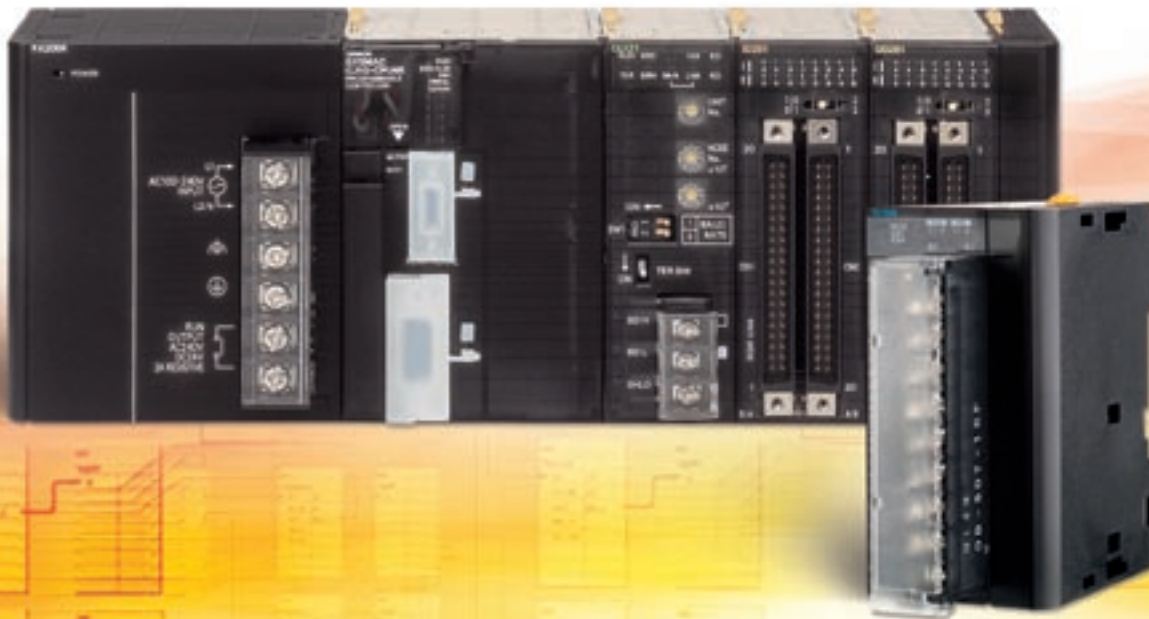
▲ Central storage control

Control over temperature and humidity for multiple storage cabinets can be handled from one single PLC. Easy to scale-up or -down with a perfect overview using CX-Supervisor or other SCADA software.



▲ Dedicated temperature and process I/O

Analogue outputs for manual power control or multiple loop on inputs for alarming and data logging - all centrally handled from one CPU and with our extensive range of temperature and process I/O units.



▲ Total machine control

Specific features like compact build, accuracy, speed and control over disturbance, projects our know-how in packaging machinery.

Integrated loop benefits

- Always a good investment thanks to the modular and scalable concept
- Space saving thanks to compact size
- Broad range of options from PID PLC instruction right up to analogue loop strategy engines
- Effective PLC-integrated solutions for controlling any number of loops
- Easy engineering with Function Block programming
- HMI screens can be simply and automatically generated
- Gradient Temperature Control

CX-One

CX Thermo - CX Process

Configuration software



G3NA benefits

- 5-90A output current
- 24-480VAC/5-200VDC output voltages
- Built-in varistor
- Operation indicator (red LED)
- Protective cover for greater safety

G3NA – Hockey puck style SSR with 5-90A output currents

All models feature the same compact dimensions to provide a uniform mounting pitch. A built-in varistor effectively absorbs external surges. The operation indicator enables monitoring operation.

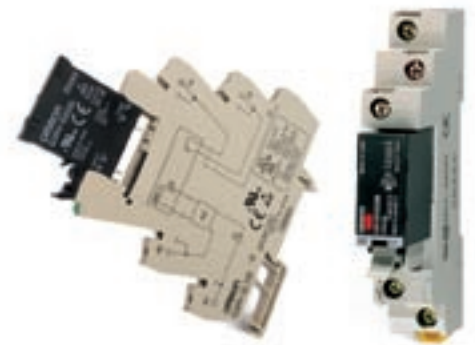


G3R/G3RV benefits

- Up to 2A output current
- 5 to 200VDC/100 to 240VAC output voltages
- Compatible with G2RS/G2RV electromechanical relays
- DIN-rail mounting via sockets

G3R and G3RV - Compact SSR for I/O interfacing

High-speed models with optimum input ratings for a variety of sensors are available, as well as input and output modules that can be used for the G2R.





IR sensors



TC Views

Mini SCADA



Power control



SSR's



G3PE benefits

- Single and three phase, 15-45A output current
- 100-480VAC output voltages
- Applicable with 1-, 2- and 3-phase loads
- All features can be delivered with or without heat sink
- Surge-pass circuit provides high surge endurance

G3PE – Compact Solid State Relay with built-in heat sink

The compact design of G3PE has been achieved by optimising the shape of the heat sink. The G3PE range provides you with a choice between DIN-rail mounting and panel mounting.

G3ZA benefits

- Multi-channel power controller
- Controls up to eight standard solid state relays
- Easy integration with PLC and CelciuX[®]
- Compact size
- Available with heater alarms (four channels) or without (eight channels)

G3ZA – Multi-channel power controller for smarter SSR usage

The G3ZA receives manipulated variables generated by control loops or manual settings via a simple-to-wire RS-485. It regulates the heater power with high precision by driving up to eight standard SSRs. Moreover, the offset control reduces peak power in the supply net.

FIT FOR PURPOSE

Omron is able to supply different scalable solutions for the variety of needs in the market today. Depending on the level of complexity of the application, we offer a increasing level of sophistication. Lean, Stream & Xstream



Lean Automation

Simple, compact and easy to use. The perfect fit to perform straightforward applications without the need for specialist functionality. Combine Omron's CP1 compact PLC with CelciuX⁹, NQ and others, efficiently over Modbus.

Omron's NQ series of compact HMIs can simply visualise and effectively operate the connected units. For CelciuX⁹ Tag lists and general operation screens are prepared to speed-up the application development.

Fast project development using Smart Active Part

Smart Active Parts (SAPs) are pre-programmed visualisation modules with embedded communication code. Using SAPs, you can configure, commission, operate and maintain your complete machine from our NS terminals. SAPs enable you to read and write without having to program a single line of communication code.



Stream Automation

Dedicated for fast and flexible automation. By using field network connectivity the system can be configured in a highly flexible manner. And at the same time providing a single access point to all connected devices from the PLC or HMI. One connection, One software.

X-stream Automation

Implementing control functions like cascade and fuzzy, plus the use of process control I/O, data acquisition and storage, provides an ideal platform for plant-cell automation.

OMRON EUROPE B.V. Wegalaan 67-69, NL-2132 JD, Hoofddorp, The Netherlands. Tel: +31 (0) 23 568 13 00 Fax: +31 (0) 23 568 13 88 www.industrial.omron.eu

Austria

Tel: +43 (0) 2236 377 800
www.industrial.omron.at

Belgium

Tel: +32 (0) 2 466 24 80
www.industrial.omron.be

Czech Republic

Tel: +420 234 602 602
www.industrial.omron.cz

Denmark

Tel: +45 43 44 00 11
www.industrial.omron.dk

Finland

Tel: +358 (0) 207 464 200
www.industrial.omron.fi

France

Tel: +33 (0) 1 56 63 70 00
www.industrial.omron.fr

Germany

Tel: +49 (0) 2173 680 00
www.industrial.omron.de

Hungary

Tel: +36 1 399 30 50
www.industrial.omron.hu

Italy

Tel: +39 02 326 81
www.industrial.omron.it

Netherlands

Tel: +31 (0) 23 568 11 00
www.industrial.omron.nl

Norway

Tel: +47 (0) 22 65 75 00
www.industrial.omron.no

Poland

Tel: +48 (0) 22 645 78 60
www.industrial.omron.pl

Portugal

Tel: +351 21 942 94 00
www.industrial.omron.pt

Russia

Tel: +7 495 648 94 50
www.industrial.omron.ru

South Africa

Tel: +27 (0)86 066 7661
www.industrial.omron.co.za

Spain

Tel: +34 913 777 900
www.industrial.omron.es

Sweden

Tel: +46 (0) 8 632 35 00
www.industrial.omron.se

Switzerland

Tel: +41 (0) 41 748 13 13
www.industrial.omron.ch

Turkey

Tel: +90 216 474 00 40
www.industrial.omron.com.tr

United Kingdom

Tel: +44 (0) 870 752 08 61
www.industrial.omron.co.uk

More Omron representatives

www.industrial.omron.eu

Automation Systems

- Programmable logic controllers (PLC) • Human machine interfaces (HMI) • Remote I/O
- Industrial PC's • Software

Motion & Drives

- Motion controllers • Servo systems • Inverters

Control Components

- Temperature controllers • Power supplies • Timers • 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

Although we strive for perfection, Omron Europe BV and/or its subsidiary and affiliated companies do not warrant or make any representations regarding the correctness or completeness of the information described in this document. We reserve the right to make any changes at any time without prior notice.