

UP DATE

Next generation temperature controllers

E5_N SERIES

designed to exceed expectations!



Advanced Industrial Automation

OMRON

Based on the success of the new E5CN series, Omron has introduced upgrades of the E5AN and E5EN temperature controllers, which offer all of the superb features of previous models, along with some innovative technologies that users will greatly appreciate. 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.

Bringing new dimensions to temperature control

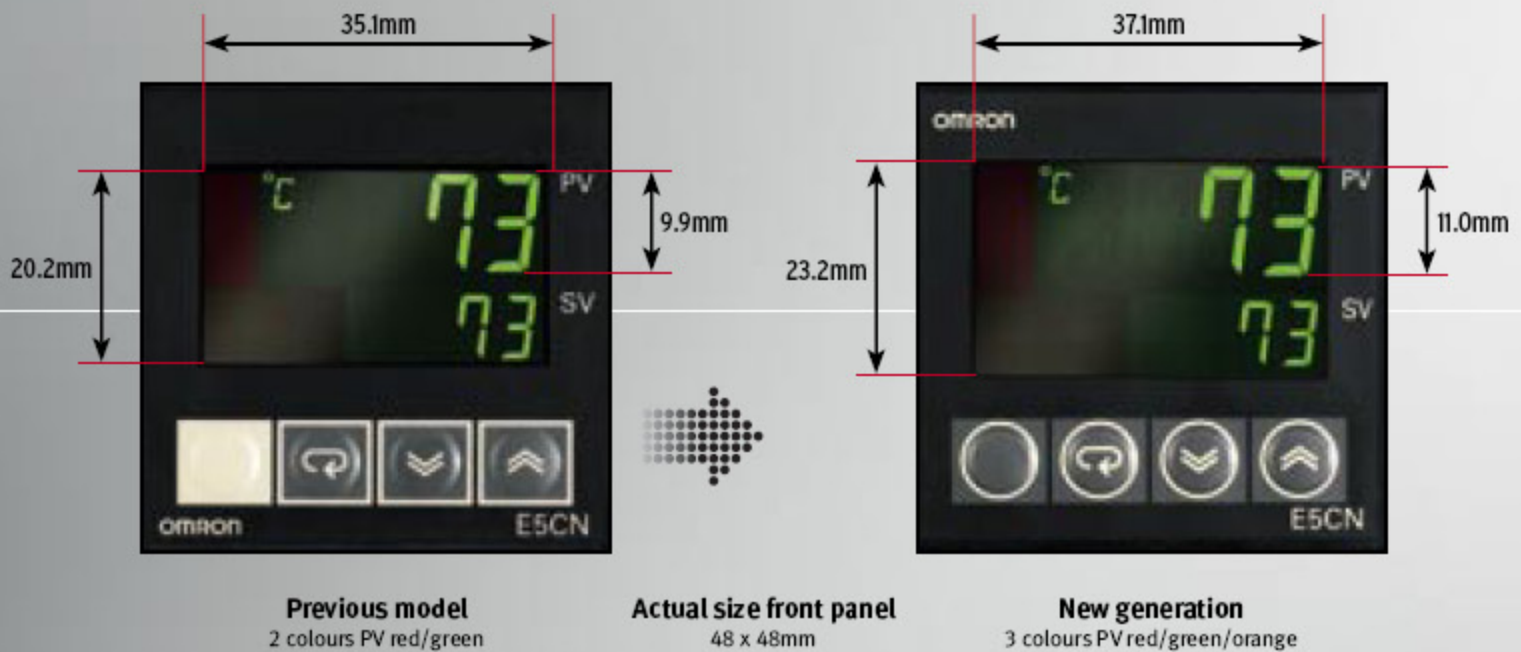
One of the functions is to show the state of the process without the need of value interpretation. When during start-up the PV is lower than SV the display is orange (1), and if the PV is within a pre-set threshold to the SV the display turns green (2). When the PV rises above the threshold, the display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

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! Why not try the next generation temperature controllers?

They will continue to exceed your expectations!



E5CN



Applicable to the E5CN only:

Thinner front panel profile

The E5CN's profile has decreased from 9.2mm to 6.2mm, making it compatible with other Omron 1/16 DIN panel-mounted products.



In many ways the new E5_N temperature controllers are the same as the previous models and offer:

- The same easy way of configuration and operation.
- An identical screw size and terminal allocation (no need to change your drawings).
- Easy draw out for additional hardware options to make it future-proof.
- A display that's backwards compatible to give you the same 7-segment display as that on the previous E5_N series.
- 2-PID control, a unique Omron feature that ensures very stable temperature control during start-up and production, leading to faster start-up and better-quality products.
- IP66 rating to make them suitable for use in the food, pharma and bio industries, where regular wash-down is performed. The flat membrane keys prevent dirt from clinging to the surface.

The same high-quality products, with even more benefits!

The new E5_N models are built to the same high standards as the previous models. They have the same dimensions. They connect the same way and offer the same easy programming and operation, so you can install them with confidence in your applications.

Caring for the environment

OMRON has a corporate policy to manufacture industrial products that comply with the requirements of the RoHS directive from April 2006. OMRON is committed to going beyond the RoHS directive even though these products are currently excluded from

the directive; as a socially responsible manufacturer we are working through our own list of to remove, wherever possible, other substances that might be considered hazardous to the environment.



The E5_N series is user-friendly, thanks to:

- Customisable menu settings. Parameter by parameter can be hidden as required to reduce possible confusion for the operator.
- CX-Thermo, a PC based application for configuration and tuning.
- ThermoMini, a PC based clone tool that enables the same parameters to be programmed into multiple units.
- Password protection, which prevents unauthorised access to settings.

In addition, the series has a clear user interface, thanks to:

- The LCD display, which gives better resolution and sharper images, even from an angle and under harsh lighting conditions. The display now has 11 segments for better text recognition.

	M	Q	V	W	Z	R
7 Segment	ñ	9	u	u	≡	r
11 Segment	M	Q	V	W	Z	R

- Large digits, making the display easier to read, even from a distance.
- The 3-colour change PV display with red, green and orange characters. The colours can be programmed to indicate an alarm, or when the PV varies beyond a pre-set deviation from SV.

E5EN



Actual size front panel
48 x 96mm

E5AN



Actual size front panel
96 x 96mm

- **Omron's quality and reliability built-in**

Designed and tested to Omron's renowned high standards, each product in this range meets all relevant international standards and provides consistently superb quality throughout its working life.

- **Total hardware supplier**

Omron's huge product portfolio ensures that there's always a product available to handle your specific application!

- **Complete solutions provider**

Omron's drive for continuous development and use of innovative technologies, combined with its strict quality-first policy and just-in-time delivery of components and solutions, makes us the ideal business partner for even the most demanding user.

Additional features of the new E5_N series include:

3-phase heater alarm

This unique feature detects a (partial) broken heater or a Solid State Relay (SSR) short circuit in a 3-phase configuration.

Alarm delay timer

The alarm delay timer prevents unnecessary alarms being triggered by allowing for process disturbances (for example: an expected temperature drop due to the insertion of a new oven load).

2-point input shift for temperature input

This allows the PV to be adjusted in line with changes in the dynamics of a process for more accurate temperature control. The 1-point linear shift is of course still available.

Transfer output (analogue communication)

An output that allows you to re-transmit either the set-point, output or process value to, for example, a chart recorder or control system.

Selectable alarm operation during set-point ramp

Prevents unnecessary alarms during the start-up phase. You can select the alarm to be triggered on 'target SV' or on 'ramp SV'.

Assignable hardware output

Both the E5AN and E5EN have a maximum of five outputs, where the E5CN has a maximum of four. You can assign any function (Heat, Cool, or Alarm for example) to any available output for even more flexibility.

Manual output (MV)

This enables the operator to take over the control output manually. For example, if the sensor fails, the operator can preserve or even safely finish the production run.

Forced manual output

at sensor error or when control is stopped

This forces the output to any preset value required. Suitable for use in applications where heaters (in chocolate manufacturing for example) need to be kept idling. It can also be used in cooling applications where, for example, the heat exchanger always needs a minimum cooling level.

Quick Link Port (QLP)

Without the need of the optional serial communication board, this standard feature provides an easy way of connecting the temperature controller to a PC (USB), even when it's mounted in a panel.

Robust Tuning (RT)

This unique feature enables the operator to select a second mode of tuning to find the ideal set of control parameters. This feature will prove itself when a wide range of SV is used and in processes with a long dead time.

Modbus and Compoway/F protocol

A software selectable feature that gives more connectivity possibilities, and allows the E5_N series to be more easily integrated into existing system networks. High-speed serial communication up to 38,400 bps provides faster response.

Two main types available

- 1) Temperature type: Thermocouple and Pt100
- 2) Process type: Analogue input (mA and V)

Both types feature improved sampling and control update time (from 500ms to 250ms)

Ordering information for the E5CN

48x48mm model	Input	Output	Alarms	Voltage
E5CN-R2MT-500	temperature (TC/Pt/mV)	relay	2	AC100-240 or DC/AC24
E5CN-Q2MT-500		voltage (pulse)		AC100-240 or DC/AC24
E5CN-C2MT-500		linear current		AC100-240 or DC/AC24
E5CN-Y2MT-500		hybrid relay		AC100-240
E5CN-R2ML-500	analogue (mA/V)	relay	2	AC100-240 or DC/AC24
E5CN-Q2ML-500		voltage (pulse)		AC100-240 or DC/AC24
E5CN-C2ML-500		linear current		AC100-240 or DC/AC24
E5CN-Y2ML-500		hybrid relay		AC100-240

E5CN-U type in-panel models (DIN-rail mounted)

48x48mm model	Input	Output	Alarms	Voltage
E5CN-R2TU	temperature	relay	2	AC100-240 or DC/AC24
E5CN-Q2TU	(TC/Pt/mV)	voltage (pulse)		AC100-240 or DC/AC24

E5CN option boards (do not fit in E5CN-U types; one slot available in each instrument)

Model	Option	Option	Option	Option
E53-CN03N	RS-485	heater alarm		
E53-CN03N	RS-485			
E53-CN03N		heater alarm	event input	
E53-CN03N			event input	
E53-CN03N	RS-485	3-phase heater		
E53-CN03N	RS-485			voltage (pulse)
E53-CN03N		heater alarm		voltage (pulse)
E53-CN03N			event input	power supply 12VDC/20mA
E53-CN03N		heater alarm		power supply 12VDC/20mA

Ordering information for the E5AN and E5EN

96x96mm model	48x96mm model	Input	Output 1	Fixed option	Alarms	Voltage	
E5AN-C3MT-500	E5EN-C3MT-500	temperature (TC/Pt/mV)	linear current		3	AC100-240 or DC/AC24	
E5AN-C3YMT-500	E5EN-C3YMT-500			hybrid relay		AC100-240	
E5AN-C3QMT-500	E5EN-C3QMT-500			voltage (pulse)		AC100-240	
E5AN-Q3MT-500	E5EN-Q3MT-500		voltage (pulse)	voltage (pulse)		3	AC100-240 or DC/AC24
E5AN-Q3YMT-500	E5EN-Q3YMT-500				hybrid relay		AC100-240
E5AN-Q3QMT-500	E5EN-Q3QMT-500				voltage (pulse)		AC100-240
E5AN-Q3HMT-500	E5EN-Q3HMT-500				heater alarm		AC100-240 or DC/AC24
E5AN-Q3HHMT-500	E5EN-Q3HHMT-500				3-phase HA		AC100-240
	E5EN-Q3PMT-500				power supply		AC100-240
E5AN-R3MT-500	E5EN-R3MT-500		analogue (mA/V)	relay		3	AC100-240 or DC/AC24
E5AN-R3QMT-500	E5EN-R3QMT-500				voltage (pulse)		AC100-240
E5AN-R3HMT-500	E5EN-R3HMT-500				heater alarm		AC100-240 or DC/AC24
E5AN-R3HHMT-500	E5EN-R3HHMT-500	3-phase HA			AC100-240		
	E5EN-R3PMT-500	power supply		AC100-240			
	E5EN-C3ML-500	voltage (pulse)		linear current		3	AC100-240
	E5EN-Q3ML-500						AC100-240
	E5EN-Q3YML-500			hybrid relay	AC100-240		
E5AN-Q3HML-500	E5EN-Q3HML-500		heater alarm	AC100-240			
	E5EN-R3ML-500	relay			3	AC100-240	
E5AN-R3HML-500	E5EN-R3HML-500		heater alarm	AC100-240			

E5AN/EN option boards (one slot available in each instrument)

Model	Option
E53-EN01	RS-232 communications (Compoway-F/Modbus)
E53-EN03	RS-485 communications (Compoway-F/Modbus)
E53-AKB	event input

E5_N series optional tools

Model	Option
E58-CIFQ1	USB PC based configuration cable
CX-Thermo	PC based configuration and tuning software
ThermoMini	PC based parameter cloning software

Heater alarm (CT input) is a combination of HBA (= Heater burnout alarm) and HSA (= SSR short circuit alarm).
All part numbers comply with the RoHS directive and contribute to a better living environment.

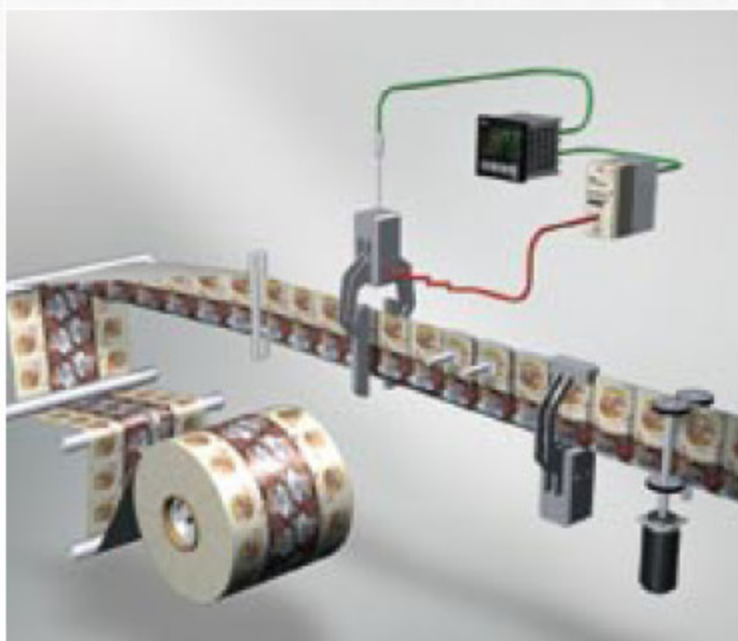
Typical features and applications

Faster input sampling and control period

This gives faster, more precise heater control in rapidly changing, disturbance-sensitive applications.

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).

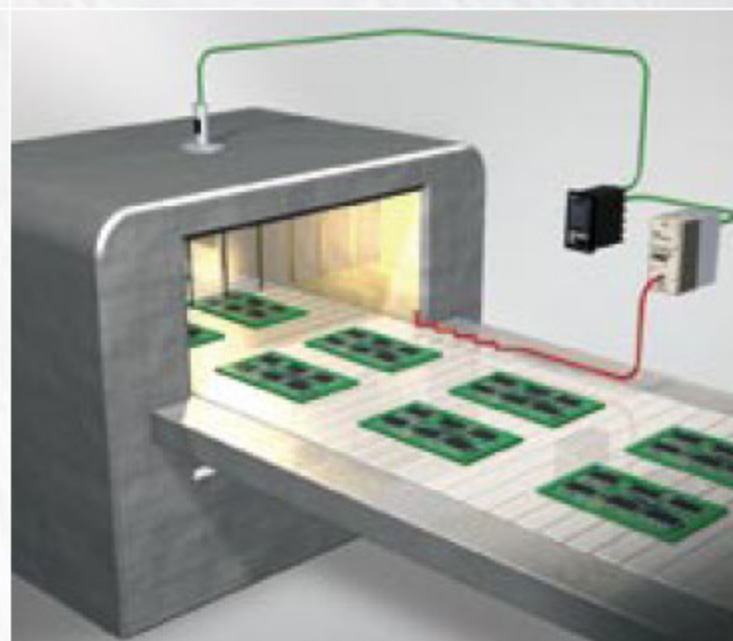


Input for new ES1B (contactless temperature sensor)

The E5_N series has an input for Omron's new contactless sensor, which is designed to measure moving products. It is ideal for checking hot spots (in paper-drying applications or hot bearings, for example).

(Partial) heater-break and SSR short-circuit detection system

This detects potential overheating of the machine or the need for maintenance at the early stages.



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 in a smooth, controlled way.



Loop break alarm and sensor break alarm (with forced MV option)

In plastics production the tool used to make the product is changed quite often. Frequent reconnecting of the sensor or heater can result in a wire break (a broken thermocouple, for example). These alarms quickly detect such problems in the process.



E5AN



E5EN



E5CN

E5GN next to be updated



E5GN