OMRON

E5_C TEMPERATURE CONTROLLER

High performance with simplicity

» Unique performance in temperature control

» High-contrast display

» Easy set-up and operation

realizing

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 E5_C, which set new global standards in the crucial areas of precision, user friendliness and control performance. The E5_C series will save you time and effort in set-up and operation, while enabling faster and more accurate monitoring/control of your process. The high-visibility display of the new series is also extremely easy to read and virtually eliminates any possibility for human error.

Key features

- High-contrast, white LCD display visible from large distances and from any angle
- Easy to set up, and operate intuitively via CX-Thermo without power supply
- 50 ms sampling period for fast and precise regulation
- Functions for diagnosis for secure operations (see note 1)
- Useful timer and logic operation functions eliminating the need of a PLC
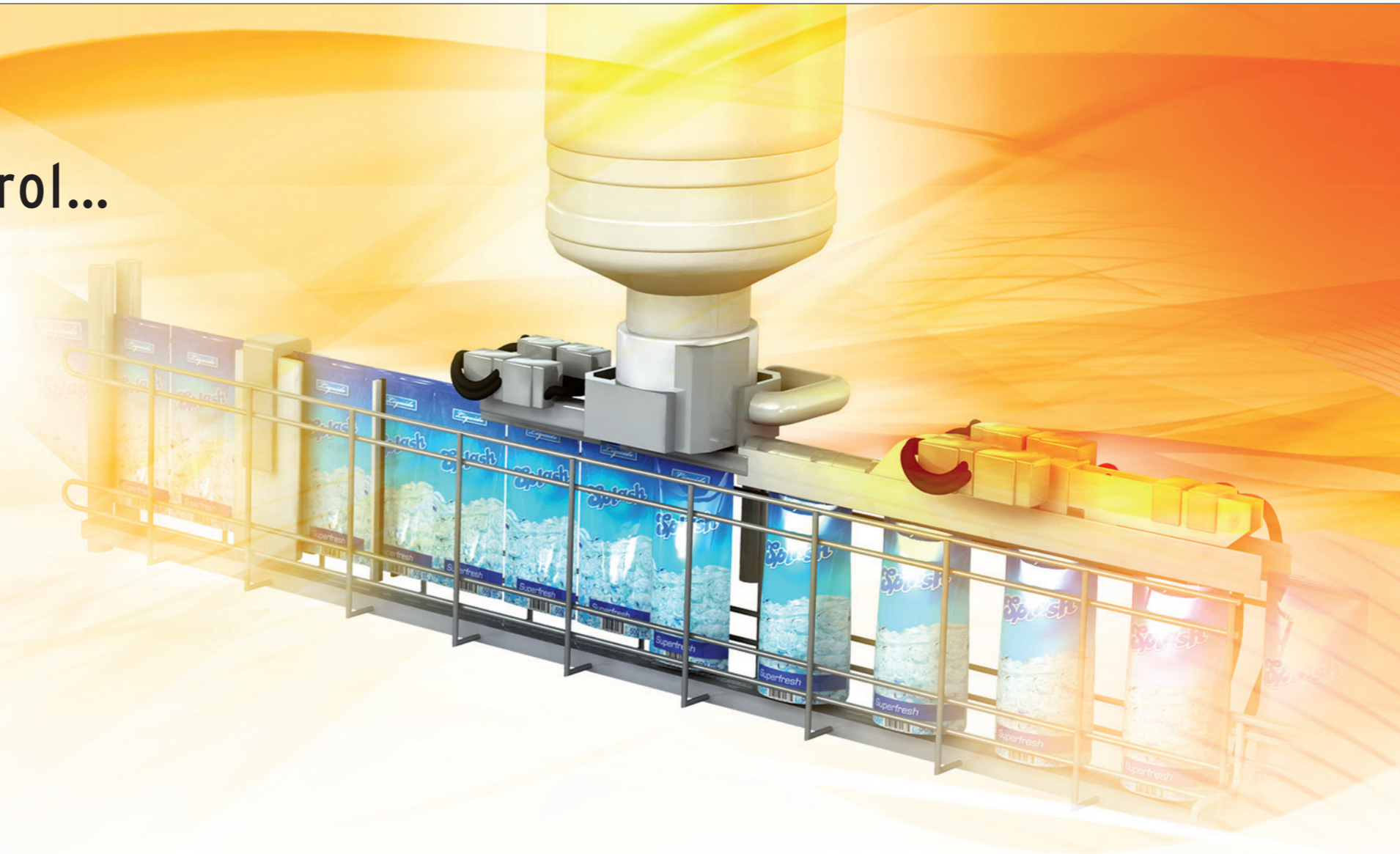
...is higher in every respect

NEW GENERATION

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

Clearer LCD display

The large, high-contrast, white LCD display contributes to the exceptional clarity and therefore readability of the E5_C series. The display can be read unambiguously from greater distances and from much wider viewing angles than normal.

Easy set-up and operation

Coupled with the autotuning algorithms, which greatly reduce set-up and commissioning time, Omron's CX-Thermo support software has been specially developed for use with the E5_C series. This enables faster parameter set-up, easier device adjustment and simpler maintenance.

Unique performance

Although intrinsic high sampling speed and high precision are built into the E5_C series, Omron's 2-PID control is a key factor behind the advantage it offers over standard controllers. Using a powerful algorithm, it makes all the difference to control stability and thus the quality of your products.

High-contrast display

White LCD offers the greatest contrast to the black instrumentation backgrounds found in panels and the lighting conditions found in most control rooms. Despite the compact dimensions of the E5_C series, the use of white LCD technology means that the 15-18 mm display height gives maximum clarity for its size. The distance and viewing angle of the high-contrast, white LCD light display is also far less critical for viewers, ensuring correct readings every time.

The white LCD display is easy to read in the subdued lighting conditions found in most control rooms.

The display remains easy to read even from wide viewing angles.

Save space!

The compact and space-saving design of the new E5_C controller generation requires less panel depth (60 mm), allowing quick snap-mounting and easy installation even under very cramped conditions.

Thanks to the IP66 protection of the front cover, the E5_C can withstand humid environments and also be cleaned with non-aggressive fluids.

Easy to connect, set-up and operate

The E5_C series is extremely easy to connect, set-up and operate in just a few simple steps using the instrument's five front keys. Omron's CX-Thermo software and new navigation assistant for intuitive settings offers the fastest possible parameter setting, easier device adjustment and simpler maintenance.

Ready to operate in only three steps:

1 Connect – no extra wiring necessary*

2 Navigate and set-up

3 Operate

* CX-Thermo V4.4 must be preinstalled. It is available as a bundle together with USB converter E58-CIFQ2 and E58-CIFQ2-E

Time-saving 'shift key' for changing the set value

Key assignment can be changed for RUN/STOP or AT execution/STOP according to the user's setting!

Push the shift key

Five front keys

Units digit setting

Tens digit setting

# Unique performance with simplicity...

...and more control functionality

With key features like simplicity in operation, Omron's patented PID control, 50ms sampling period and the ability to handle multi-funtional input and output types, the E5_C sets a new standard in fast and precise temperature regulation. It has all the familiar functionality available from existing Omron temperature controllers to cover virtually any general-purpose demand. And naturally, the versatile E5_C series is available with input/output combinations to perfectly match all of your requirements.

Extended inputs & outputs
• Remote SP input
• Transfer output
  (voltage 1-5 V output) added
• Event input
• Auxiliary output

New feature
• Program-less communication
• Position-proportional control

CHINA

EUROPE

AMERICA

JAPAN

ASIA-PACIFIC
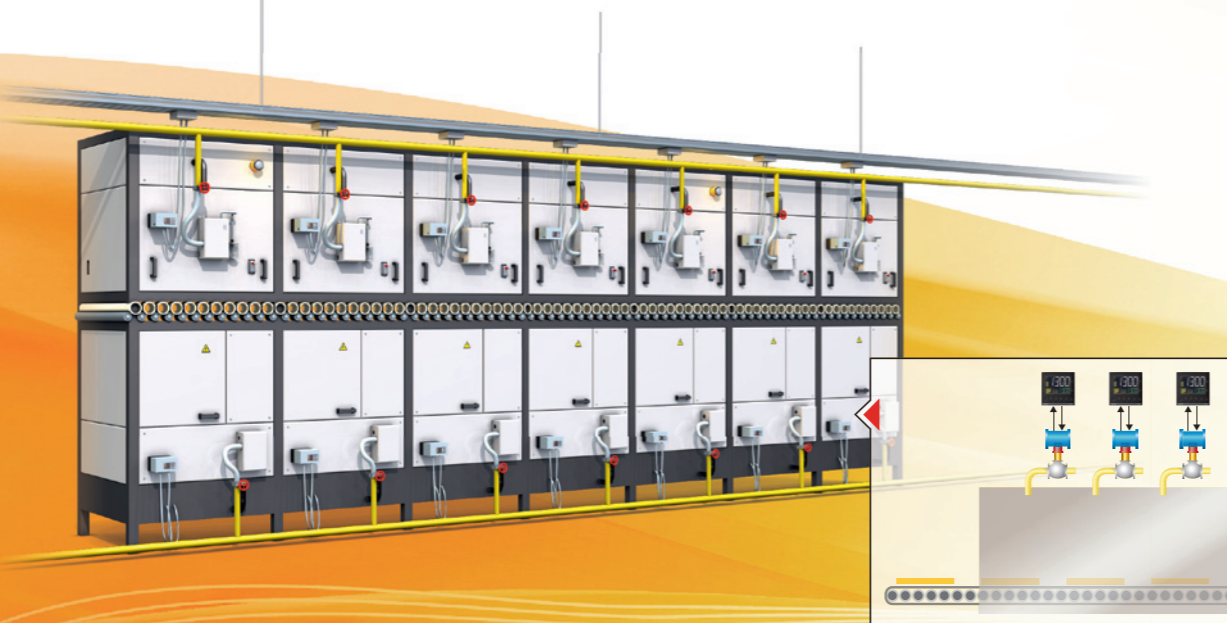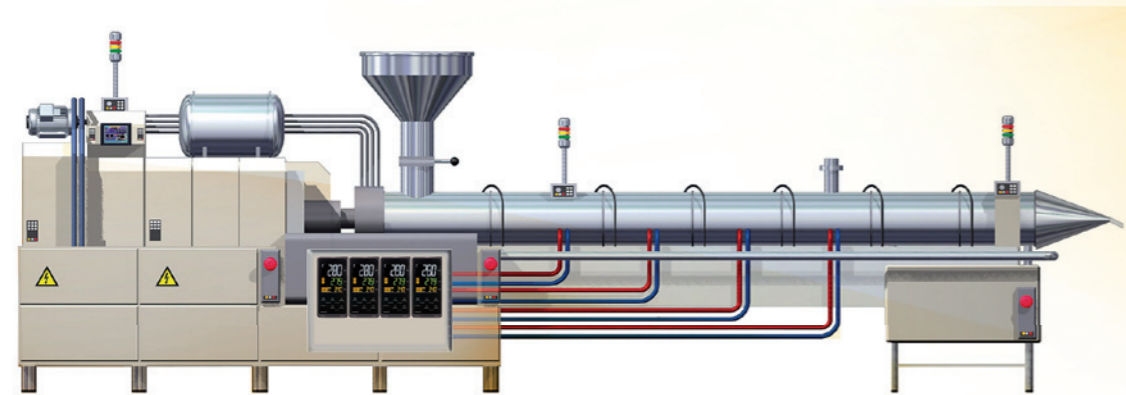
Global availability, support and network

Providing you with the support you need to operate globally

Whether you want to take your existing products into new industrial sectors, or whether you want to expand your business into entirely new geographical markets, Omron can help. We aim to offer the same level of support globally, without forgetting local needs.

We have production facilities on every continent.
Our smart communications network and seamless global support means we can provide you with parts and technical support wherever you sell your machines. And all of our components comply with major international standards, to ensure problem-free integration. It's all there for you.

Facts and figures
• Over 35,000 employees
• Almost 200 locations
• Presence in every continent
• Knowledge-sharing through our global infrastructure
• Local R&D facilities synchronised to local needs
• Local factories to ensure quick response
• Global pricing terms
• Global support

E5CC model list (all models 3 auxiliary outputs)

Output	Option No.*	Order code AC110-240V	Order code AC/DC24V
Out 1: Relay **Out 2:** non		E5CC-RX3A5M-000	E5CC-RX3D5M-000
	001	E5CC-RX3A5M-001	E5CC-RX3D5M-001
	003	E5CC-RX3A5M-003	E5CC-RX3D5M-003
	005	E5CC-RX3A5M-005	E5CC-RX3D5M-005
	006	E5CC-RX3A5M-006	E5CC-RX3D5M-006
	007	E5CC-RX3A5M-007	E5CC-RX3D5M-007
Out 1: Voltage (pulse) **Out 2:** non		E5CC-QX3A5M-000	E5CC-QX3D5M-000
	001	E5CC-QX3A5M-001	E5CC-QX3D5M-001
	003	E5CC-QX3A5M-003	E5CC-QX3D5M-003
	005	E5CC-QX3A5M-005	E5CC-QX3D5M-005
	006	E5CC-QX3A5M-006	E5CC-QX3D5M-006
	007	E5CC-QX3A5M-007	E5CC-QX3D5M-007
Out 1: Voltage (pulse) **Out 2:** Voltage (pulse)		E5CC-QQ3A5M-000	E5CC-QQ3D5M-000
	001	E5CC-QQ3A5M-001	E5CC-QQ3D5M-001
	003	E5CC-QQ3A5M-003	E5CC-QQ3D5M-003
	005	E5CC-QQ3A5M-005	E5CC-QQ3D5M-005
	006	E5CC-QQ3A5M-006	E5CC-QQ3D5M-006
	007	E5CC-QQ3A5M-007	E5CC-QQ3D5M-007
Out 1: Linear current **Out 2:** non		E5CC-CX3A5M-000	E5CC-CX3D5M-000
	004	E5CC-CX3A5M-004	E5CC-CX3D5M-004
	005	E5CC-CX3A5M-005	E5CC-CX3D5M-005
	006	E5CC-CX3A5M-006	E5CC-CX3D5M-006
	007	E5CC-CX3A5M-007	E5CC-CX3D5M-007
Out 1: Linear current **Out 2:** Voltage (pulse)		E5CC-CQ3A5M-000	E5CC-CQ3D5M-000
	001	E5CC-CQ3A5M-001	E5CC-CQ3D5M-001
	003	E5CC-CQ3A5M-003	E5CC-CQ3D5M-003
	005	E5CC-CQ3A5M-005	E5CC-CQ3D5M-005
	006	E5CC-CQ3A5M-006	E5CC-CQ3D5M-006
	007	E5CC-CQ3A5M-007	E5CC-CQ3D5M-007

As well as these models other models are available on request. Please contact the local sales office for special requests.

E5EC/E5AC Model list (all models 4 auxiliary outputs)

Output	Option No.*	Order code AC110-240V	Order code AC/DC24V
Out 1: Relay **Out 2:** non		E5_C-RX4A5M-000	E5_C-RX4D5M-000
	009	E5_C-RX4A5M-009	E5_C-RX4D5M-009
	010	E5_C-RX4A5M-010	E5_C-RX4D5M-010
	011	E5_C-RX4A5M-011	E5_C-RX4D5M-011
Out 1: Voltage (pulse) **Out 2:** non		E5_C-QX4A5M-000	E5_C-QX4D5M-000
	009	E5_C-QX4A5M-009	E5_C-QX4D5M-009
	010	E5_C-QX4A5M-010	E5_C-QX4D5M-010
	011	E5_C-QX4A5M-011	E5_C-QX4D5M-011
Out 1: Relay **Out 2:** Relay		E5_C-RR4A5M-000	E5_C-RR4D5M-000
	009	E5_C-RR4A5M-009	E5_C-RR4D5M-009
	010	E5_C-RR4A5M-010	E5_C-RR4D5M-010
	011	E5_C-RR4A5M-011	E5_C-RR4D5M-011
Out 1: Voltage (pulse) **Out 2:** Voltage (pulse)		E5_C-QQ4A5M-000	E5_C-QQ4D5M-000
	009	E5_C-QQ4A5M-009	E5_C-QQ4D5M-009
	010	E5_C-QQ4A5M-010	E5_C-QQ4D5M-010
	011	E5_C-QQ4A5M-011	E5_C-QQ4D5M-011
Out 1: Voltage (pulse) **Out 2:** Relay		E5_C-QR4A5M-000	E5_C-QR4D5M-000
	009	E5_C-QR4A5M-009	E5_C-QR4D5M-009
	010	E5_C-QR4A5M-010	E5_C-QR4D5M-010
	011	E5_C-QR4A5M-011	E5_C-QR4D5M-011
Out 1: Linear current **Out 2:** non		E5_C-CX4A5M-000	E5_C-CX4D5M-000
	004	E5_C-CX4A5M-004	E5_C-CX4D5M-004
	005	E5_C-CX4A5M-005	E5_C-CX4D5M-005
	013	E5_C-CX4A5M-013	E5_C-CX4D5M-013
	014	E5_C-CX4A5M-014	E5_C-CX4D5M-014
Out 1: Linear current **Out 2:** Linear current		E5_C-CC4A5M-000	E5_C-CC4D5M-000
	004	E5_C-CC4A5M-004	E5_C-CC4D5M-004
	005	E5_C-CC4A5M-005	E5_C-CC4D5M-005
	013	E5_C-CC4A5M-013	E5_C-CC4D5M-013
	014	E5_C-CC4A5M-014	E5_C-CC4D5M-014
Out 1: Linear current **Out 2:** Voltage (pulse)		E5_C-CQ4A5M-000	E5_C-CQ4D5M-000
	009	E5_C-CQ4A5M-009	E5_C-CQ4D5M-009
	010	E5_C-CQ4A5M-010	E5_C-CQ4D5M-010
	011	E5_C-CQ4A5M-011	E5_C-CQ4D5M-011
Out 1: Relay* **Out 2:** Relay*		E5_C-PR4A5M-000	E5_C-PR4D5M-000
	004	E5_C-PR4A5M-004	E5_C-PR4D5M-004
	014	E5_C-PR4A5M-014	E5_C-PR4D5M-014

* Position proportional contorol model

*Option No.:

001
Event Input 2, Heater Burnout SSR defect detection

003
Communication 3-phase heater alarm

004
Event Input 2, Communication

005
Event Input 4

006
Event Input 2, Transfer output

007
Event Input 2, Remote SP

009
Event Input 2, Communication 3-phase heater alarm

010
Event Input 4 Heater Burnout SSR defect detection

011
Event Input 6, Remote SP Heater Burnout SSR defect detection, Transfer output

013
Event Input 6, Remote SP, Transfer output

014
Event Input 4, Communication Remote SP, Transfer output

High performance & simplicity

The next generation E5_C temperature controller is setting a new global standard in terms of precision and user-friendly design. Best control performance, easy set-up and outstanding visibility of the white IP66 LCD display have been integrated into a space-saving housing with only 60 mm of depth.

- Fast and precise regulation: 50 ms sampling loop period time
- Easy to set up, and operate intuitively via CX-Thermo without power supply
- Best contrast display using white LCD technology which is visible from a far distance and from any angle
- Useful alarm and diagnosis functions for secure operation

Specifications

		E5CC	E5EC	E5AC
Power supply voltage		A in model number: 100 to 240 VAC, 50/60 Hz D in model number: 24 VAC, 50/60 Hz; 24 VDC		
Operating voltage range		85% to 110% of rated supply voltage		
Power consumption		6.5 VA max. at 100 to 240 VAC, and 4.1 VA max. at 24 VAC or 2.3 W max. at 24 VDC	8.3 VA max. at 100 to 240 VAC, and 5.5 VA max. at 24 VAC or 3.2 W max. at 24 VDC	9.0 VA max. at 100 to 240 VAC, and 5.6 VA max. at 24 VAC or 3.4 W max. at 24 VDC
Sensor input		– Temperature inputs Thermocouple: K, J, T, E, L, U, N, R, S, B, W, or PL II Platinum resistance thermometer: Pt100 or JPt100 Infrared temperature sensor: 10 to 70°C, 60 to 120°C, 115 to 165°C, or 140 to 260°C – Analog inputs Current input (mA): 4 to 20 or 0 to 20 Voltage input (V): 1 to 5, 0 to 5, or 0 to 10		
Input impedance		Current input: 150 Ω max., Voltage input: 1 MΩ min. (Use a 1:1 connection when connecting the ES2-HB/THB.)		
Control method		ON/OFF control or 2-PID control (with auto-tuning)		
Indication accuracy		Thermocouple input: (±0.3% of indicated value or ±1°C, whichever is greater) ±1 digit max. Platinum resistance thermometer input: (±0.2% of indicated value or ±0.8°C, whichever is greater) ±1 digit max. Analog input: ±0.2% FS ±1 digit max. CT input: ±5% FS ±1 digit max.	Thermocouple input: (±0.3% of indicated value or ±1°C, whichever is greater) ±1 digit max. Platinum resistance thermometer input: (±0.2% of indicated value or ±0.8°C, whichever is greater) ±1 digit max. Analog input: ±0.2% FS ±1 digit max. CT input: ±5% FS ±1 digit max. Potentiometer input: ±5% FS ±1 digit max.	
Auto-Tuning		Yes, 40%/100% MV output limit selection. When using Heat/Cool: Automatic cool gain adjustment		
Self-Tuning		Yes		
Control outputs	Relay output	SPST-NO, 250 VAC, 3 A (resistive load), electrical life: 100,000 operations, minimum applicable load: 5 V, 10 mA	SPST-NO, 250 VAC, 5 A (resistive load), electrical life: 100,000 operations, minimum applicable load: 5 V, 10 mA	
	Voltage output (for driving SSR)	Output voltage: 12 VDC ±20% (PNP), max. load current: 21 mA, with short-circuit protection circuit	Output voltage: 12 VDC ±20% (PNP), max. load current: 40 mA, with short-circuit protection circuit (The maximum load current is 21 mA for models with two control outputs.)	
	Current output	4 to 20 mA DC/0 to 20 mA DC, load: 500 Ω max., resolution: approx. 10,000		
Auxiliary outputs	Number of outputs	3	4	
	Output specifications	N.O. relay outputs, 250 VAC, Models with 3 outputs: 2 A (resistive load), electrical life: 100,000 operations, minimum applicable load: 5 V, 10 mA	N.O. relay outputs, 250 VAC, Models with 4 outputs: 2 A (resistive load), electrical life: 100,000 operations, minimum applicable load: 5 V, 10 mA	
Event inputs	Number of inputs	2 or 4 or 6 max (depends on the model)		
	External contact input specifications	Contact input: ON: 1 kΩ max., OFF: 100 kΩ min.		
		Non-contact input: ON: Residual voltage: 1.5 V max., OFF: Leakage current: 0.1 mA max.		
		Current flow: Approx. 7 mA per contact		
Setting method		Digital setting using front panel keys or via Remote Software CX-Thermo V4.5		
Indication method		11-segment digital display and individual indicators		
Multi SP		Up to eight set points (SP0 to SP7) can be saved and selected using event inputs, key operations, or serial communications.		
Other functions		Manual output, heating/cooling control, loop burnout alarm, SP ramp, other alarm functions, heater burnout detection (including SSR failure detection), 40% AT, 100% AT, MV limiter, input digital filter, self-tuning, temperature input shift, run/stop, protection functions, extraction of square root, MV change rate limit, logic operations, PV/SV status display, simple program, automatic cooling coefficient adjustment		
Ambient operating temperature		−10 to 55°C (with no condensation or icing)		
Ambient operating humidity		25% to 85%		
Storage temperature		−25 to 65°C (with no condensation or icing)		
Degree of protection		Front panel: IP66, Rear case: IP20, Terminals: IP00		
Sampling period		50 ms		
Size in mm (HxWxD)		48x48x64	48x96x64	96×96×64

USB communication cable E58-CIFQ2

	E5CC	E5EC	E5AC
E58-CIFQ2	■	■	■
E58-CIFQ2-E	–	■	■

E58-CIFQ2

E58-CIFQ2-E   Exchange this head for E5EC/E5AC
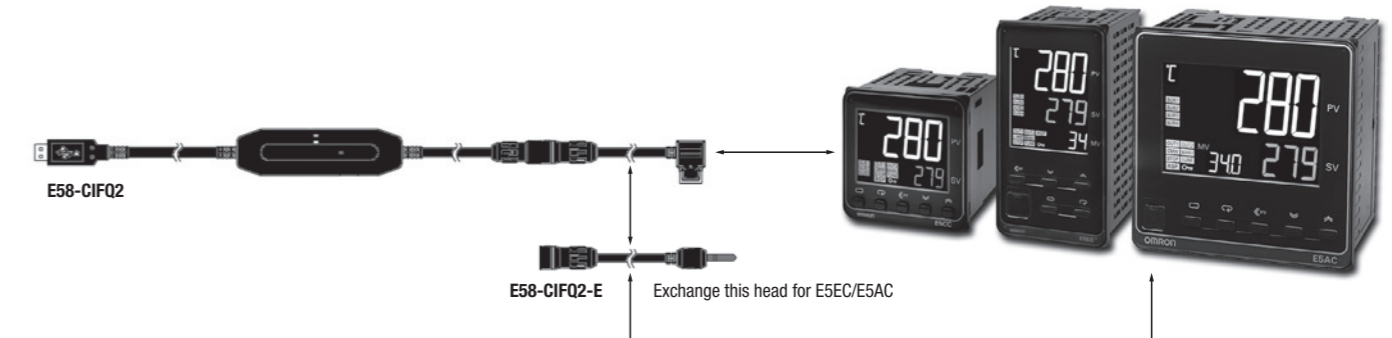
E5CC/E5EC/E5AC optional tools

Option	Order code
USB based configuration cable	E58-CIFQ2, E58-CIFQ2-E (for E5EC/E5AC)
PC based configuration and tuning software	EST2-2C-MV4

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CD_EN-02+E5_C+Brochure

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