OMRON

E5_C TEMPERATURE CONTROLLER

A Full Lineup of Next-generation Temperature Controllers

» Contribute to Machine Downsizing

» High-contrast display

» Easy set-up and operation with a Special Software

realizing

The new standard in temperature control...

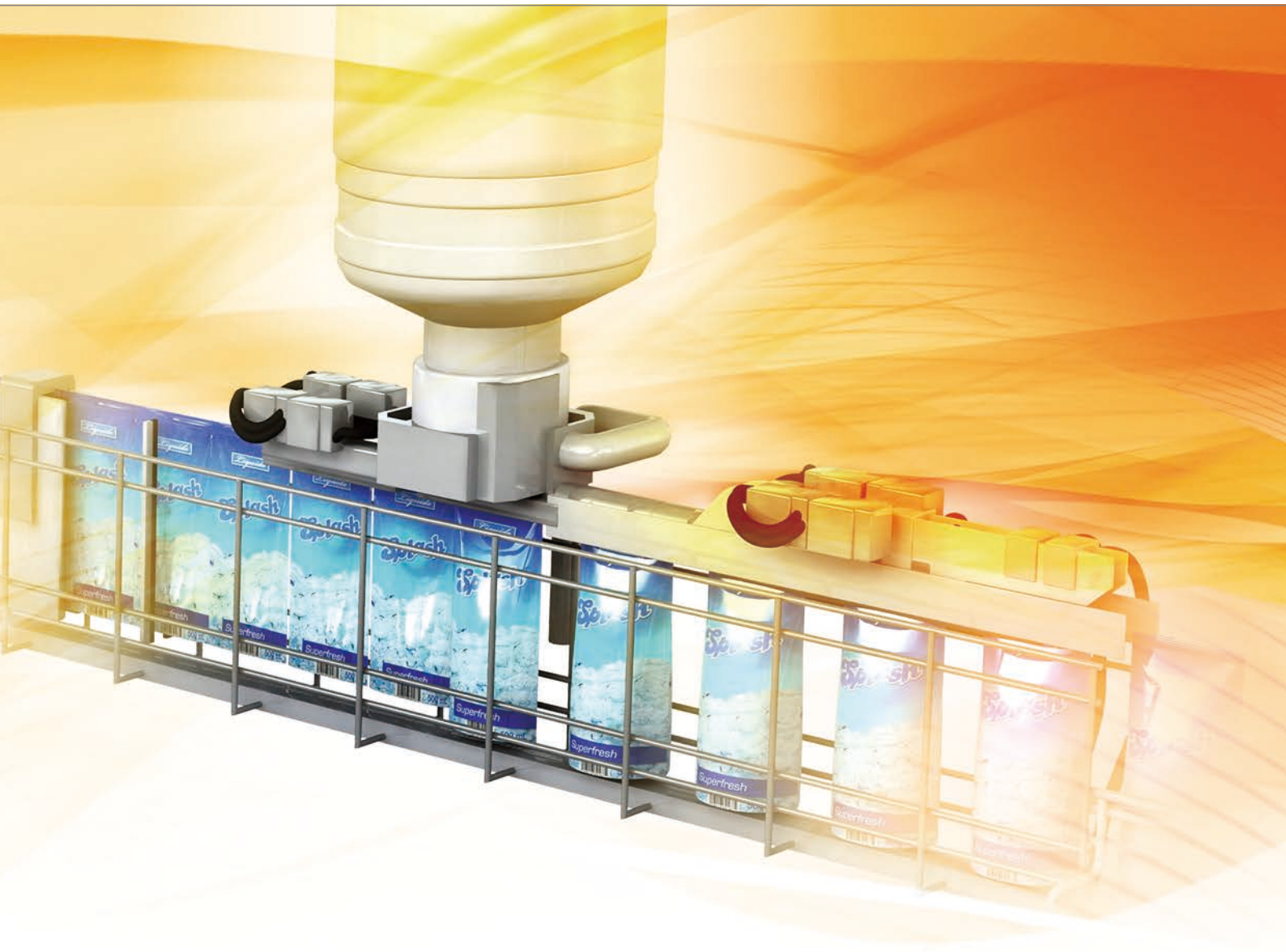
Omron has been an active innovator in temperature control since introducing its first temperature controller in 1967. Now temperature control has taken a giant leap forward with Omron's next generation of controllers – the E5_C, which set new global standards in the crucial areas of precision, user friendliness 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

NEW GENERATION

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



...is higher in every respect

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

Easy-to-read White Characters with Large Display Size*1

Big white characters on a black background achieve superior visibility.
You can quickly and reliably check the PV from wide viewing angles,
with natural light or in the subdued lighting conditions.

Character Height*1 (White PV)
E5GC : 10.5 mm
E5CC : 15.2 mm
E5EC : 18 mm
E5AC : 25 mm

Life Size
E5CC

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)*2, allowing quick snap-mounting and easy installation even under very cramped conditions. *2 Excluding E5GC/E5DC/E5CC-U

Thanks to the IP66 protection*3 of the front cover, the E5_C can withstand humid environments and also be cleaned with non-aggressive fluids.
*3 Excluding E5DC/E5CC-U

Shift Key to Reduce the Setting Work Required to Enter Values

For example, to set 100°C, it was previously necessary to increment one degree at a time with a key, but with the shift key (‹‹PF), you can instantly change the digit. This simplifies numeric entry at worksite.

Just press the shift key to move the digit.

Easy to connect, set-up and operate

USB Bus Power Eliminates the Need for a Power Supply

Even if you don't connect a power supply to the Controller,
power is supplied from the computer.

USB-Serial
Conversion Cable*4
E58-CIFQ2

*4 The E58-CIFQ2-E Communications Conversion Cable is also required to supply power to the E5EC/E5AC/E5DC from the front panel.

CX-Thermo Special Setup Software for Easy Setup

Just use computer key operations to easily achieve complex setups.
You can greatly reduce the required setup work.

Installation
(CD sold separately.)

Easy connections to a PLC with programless communications.

step1 Wire RS-485 communications.

step2 Set the communications addresses and the communications types in the Temperature Controllers.

step3 Set the communications settings in the PLC to agree with those in the Temperature Controllers.

Communications start.

Advantages

- The amount of work to set up the system is greatly reduced.
- PLC programming and memory are not required for communications.
- Communications even with multiple Temperature Controllers are automatically executed by the Temperature Controllers.
- Interface converters are not required, which reduces costs.
- Number of connected Digital Temperature Controllers: 32 max. (Up to 16 for the FX Series)

More Convenient Operations

The parameters can be copied from the master Temperature Controller to slave Temperature Controllers.

Master Temperature Controller can share RUN/STOP commands and set points with slave Temperature Controllers. Slope and offsets can be set for the set point.

Easy-to-read Display in the Compact Body (48 x 24 mm) with a Stylish Panel-mounting Design

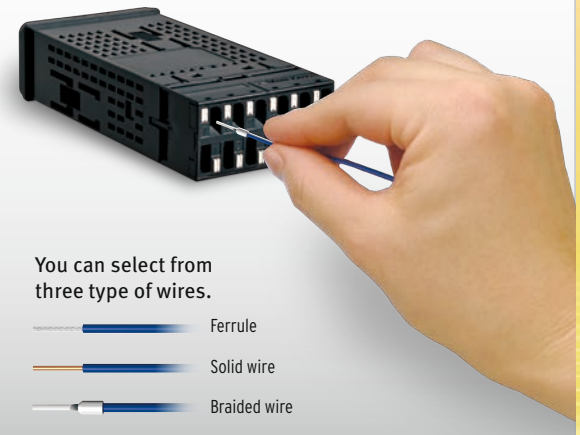
Easy-to-read: White Characters and Dual Displays with the Largest Character Height in the Industry.*1

The 48 x 24 mm size compact body inherits the high-visibility, big white characters from the E5_C series.
With the dual, side-by-side displays (PV and green SV), there is no need to switch the display.

*1 According to OMRON investigation, March 2014.

Controllers with Screwless Clamp Terminal Blocks for Easy Wiring

In addition to the models with screw terminal blocks, models with screwless clamp terminal blocks are also available. Easy wiring by inserting wires simplifies the wiring work.



Group mounting Horizontally or Vertically further downsizes machines

The E5GC allows group mounting not only horizontally, but also vertically. This helps reduce machine size even further when more than one Temperature Controller is used.*2

*2 The ambient operating temperature must not exceed given below.
Horizontal group mounting: 55°C
Vertical group mounting of two Temperature Controllers: 45°C
Vertical group mounting of three or more Temperature Controllers: 40°C

*3 Use Temperature Controllers with Screwless Clamp Terminal Blocks for vertical group mounting.

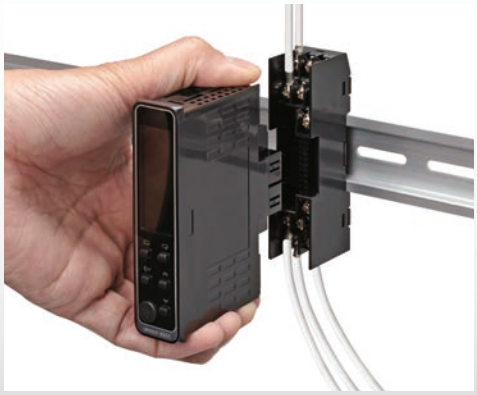
A 22.5-mm Width Body and DIN-Track Mounting capability Allow Installation in Limited Space of Control Panels

Good Visibility and Operability equivalent to On-panel Models.

The unified design of the E5_C Series has been inherited along with the functions, performance, and operability. We've achieved the equal operability as the on-panel models.
On-panel mounting is also possible.*4
*4 Mounting Adapter required; sold separately.

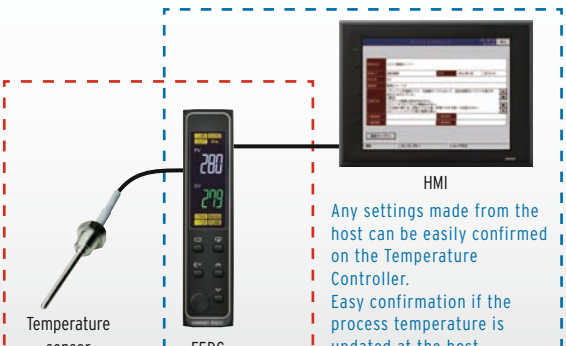
Life Size

Removable Terminal Block for Easy Mounting and Replacement.



Removing from the Terminal Block
The image is for illustration purpose only.
* Hooks must be pressed to remove from the terminal block.

Reduce Confirmation Work with Front-panel Display and Front-panel Key Settings



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-functional 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

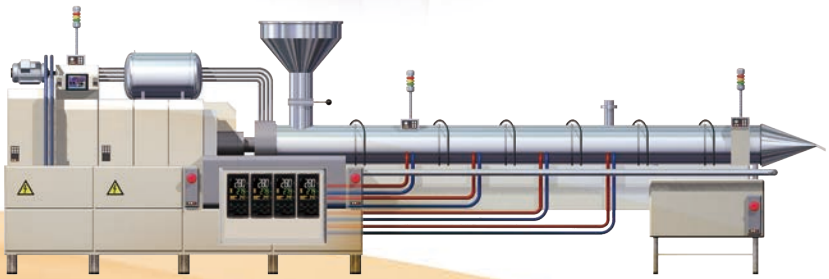
- Remote SP input*1
- Transfer output*1 (voltage 1-5 V output) added
- Event input*2
- Auxiliary output

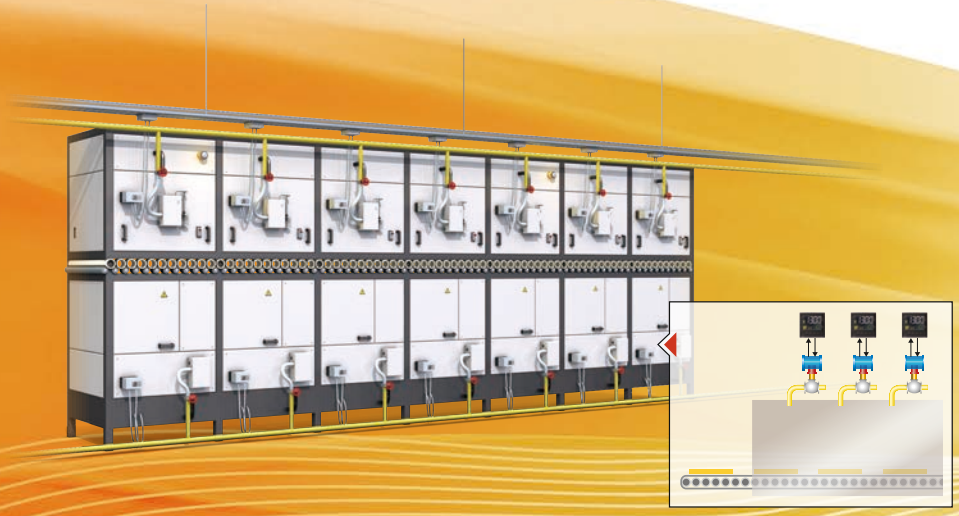
*1 Excluding E5GC/E5DC/E5CC-U
*2 Excluding E5CC-U

New feature

- Program-less communication
- Position-proportional control*3

*3 Only for E5EC/E5AC





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

E5GC Model list (Models 0,1 or 2 auxiliary outputs)

Output	Terminal type	Option No.*	Order code AC100-240V	Order code AC/DC24V
Out 1: Relay	Screw terminals (with cover)		E5GC-RX0A6M-000	E5GC-RX0D6M-000
			E5GC-RX1A6M-000	E5GC-RX1D6M-000
			E5GC-RX2A6M-000	E5GC-RX2D6M-000
		015	E5GC-RX1A6M-015	E5GC-RX1D6M-015
			E5GC-RX2A6M-015	E5GC-RX2D6M-015
		016	E5GC-RX2A6M-016	E5GC-RX2D6M-016
		023	E5GC-RX2A6M-023	E5GC-RX2D6M-023
		024	E5GC-RX1A6M-024	E5GC-RX1D6M-024
	Screwless Clamp Terminal		E5GC-RX0ACM-000	E5GC-RX0DCM-000
			E5GC-RX1ACM-000	E5GC-RX1DCM-000
			E5GC-RX2ACM-000	E5GC-RX2DCM-000
		015	E5GC-RX1ACM-015	E5GC-RX1DCM-015
			E5GC-RX2ACM-015	E5GC-RX2DCM-015
		016	E5GC-RX2ACM-016	E5GC-RX2DCM-016
		023	E5GC-RX2ACM-023	E5GC-RX2DCM-023
		024	E5GC-RX1ACM-024	E5GC-RX1DCM-024
Out 1: Voltage (pulse)	Screw terminals (with cover)		E5GC-QX0A6M-000	E5GC-QX0D6M-000
			E5GC-QX1A6M-000	E5GC-QX1D6M-000
			E5GC-QX2A6M-000	E5GC-QX2D6M-000
		015	E5GC-QX1A6M-015	E5GC-QX1D6M-015
			E5GC-QX2A6M-015	E5GC-QX2D6M-015
		016	E5GC-QX2A6M-016	E5GC-QX2D6M-016
		023	E5GC-QX2A6M-023	E5GC-QX2D6M-023
		024	E5GC-QX1A6M-024	E5GC-QX1D6M-024
	Screwless Clamp Terminal		E5GC-QX0ACM-000	E5GC-QX0DCM-000
			E5GC-QX1ACM-000	E5GC-QX1DCM-000
			E5GC-QX2ACM-000	E5GC-QX2DCM-000
		015	E5GC-QX1ACM-015	E5GC-QX1DCM-015
			E5GC-QX2ACM-015	E5GC-QX2DCM-015
		016	E5GC-QX2ACM-016	E5GC-QX2DCM-016
		023	E5GC-QX2ACM-023	E5GC-QX2DCM-023
		024	E5GC-QX1ACM-024	E5GC-QX1DCM-024
Out 1: Liner cuurent	Screw terminals (with cover)		E5GC-CX0A6M-000	E5GC-CX0D6M-000
			E5GC-CX1A6M-000	E5GC-CX1D6M-000
			E5GC-CX2A6M-000	E5GC-CX2D6M-000
		015	E5GC-CX1A6M-015	E5GC-CX1D6M-015
			E5GC-CX2A6M-015	E5GC-CX2D6M-015
		016	E5GC-CX2A6M-016	E5GC-CX2D6M-016
		024	E5GC-CX1A6M-024	E5GC-CX1D6M-024
	Screwless Clamp Terminal		E5GC-CX0ACM-000	E5GC-CX0DCM-000
			E5GC-CX1ACM-000	E5GC-CX1DCM-000
			E5GC-CX2ACM-000	E5GC-CX2DCM-000
		015	E5GC-CX1ACM-015	E5GC-CX1DCM-015
			E5GC-CX2ACM-015	E5GC-CX2DCM-015
		016	E5GC-CX2ACM-016	E5GC-CX2DCM-016
		024	E5GC-CX1ACM-024	E5GC-CX1DCM-024

*** Option No.:**

015
Communication

016
Event Input 1

023
Heater Burnout SSR defect detection

024
Event Input 2

E5CC model list (all models 3 auxiliary outputs)

Output	Option No.*	Order code AC100-240V	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.

* 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

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

Output	Option No.*	Order code AC100-240V	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 control model

* Option No.:

004
Event Input 2, Communication

005
Event Input 4

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

E5CC-U model list (models 0, 1 or 2 auxiliary outputs)

Output	Order code AC100-240V	Order code AC/DC24V
Out 1: Relay	E5CC-RW0AUM-000	E5CC-RW0DUM-000
	E5CC-RW1AUM-000	E5CC-RW1DUM-000
	E5CC-RW2AUM-000	E5CC-RW2DUM-000
Out 1: Voltage (pulse)	E5CC-QX0AUM-000	E5CC-QX0DUM-000
	E5CC-QX1AUM-000	E5CC-QX1DUM-000
	E5CC-QX2AUM-000	E5CC-QX2DUM-000
Out 1: cuurent	E5CC-CX0AUM-000	E5CC-CX0DUM-000
	E5CC-CX1AUM-000	E5CC-CX1DUM-000
	E5CC-CX2AUM-000	E5CC-CX2DUM-000

E5DC model list (models 0 or 2 auxiliary outputs)

Output	Option No.*1	Order code AC100-240V	Order code AC/DC24V
		E5DC-RX2ASM-000	E5DC-RX2DSM-000
Out 1: Relay	002	E5DC-RX2ASM-002	E5DC-RX2DSM-002
	015	E5DC-RX0ASM-015*2	E5DC-RX0DSM-015*2
	017	E5DC-RX2ASM-017	E5DC-RX2DSM-017
		E5DC-QX2ASM-000	E5DC-QX2DSM-000
Out 1: Voltage (pulse)	002	E5DC-QX2ASM-002	E5DC-QX2DSM-002
	015	E5DC-QX0ASM-015*2	E5DC-QX0DSM-015*2
	017	E5DC-QX2ASM-017	E5DC-QX2DSM-017
		E5DC-CX2ASM-000	E5DC-CX2DSM-000
Out 1: Liner cuurent	015	E5DC-CX0ASM-015*2	E5DC-CX0DSM-015*2
	015	E5DC-CX2ASM-015	E5DC-CX2DSM-015
	016	E5DC-CX2ASM-016	E5DC-CX2DSM-016

*1 **Option No.:**

002
Communication, Heater Burnout SSR defect detection

015
Communication

016
Event Input 1

017
Event Input 1 , Heater Burnout SSR defect detection

*2 **Auxiliary outputs are not possible for these models.**

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. * Excluding E5GC

- Fast and precise regulation: 50ms 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

		E5GC	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		5.9VA max. at 100 to 240 VAC, and 3.2VA max. at 24 VAC or 1.8W max. at 24 VDC	Models with option selection of 000: 5.2 VA max. at 100 to 240 VAC, and 3.1 VA max. at 24 VAC or1.6 W max. at 24 VDC All other models: 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	Models with option selection of 000: 6.6 VA max. at 100 to 240 VAC, and 4.1 VA max. at 24 VAC or 2.3 W max. at 24 VDC All other models: 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	Models with option selection of 000: 7.0 VA max. at 100 to 240 VAC, and 4.2 VA max. at 24 VAC or 2.4 W max. at 24 VDC All other models: 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 input Thermocouple: K, J, T, E, L, U, N, R, S, B, W, or PL II Platinum resistance thermometer : Pt100 or JPt100 Infrared temperature sensor (ES1B): 10 to 70°C, 60 to 120°C, 115 to 165°C, or 140 to 260°C – Analog input Current input: 4 to 20 mA or 0 to 20 mA Voltage input: 1 to 5 V, 0 to 5 V, or 0 to 10 V			
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 (at the ambient temperature of 23°C)		Thermocouple: (±0.3% of indication value or ±1°C, whichever is greater) ±1 digit max.*1 Platinum resistance thermometer: (±0.2% of indication 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: (±0.3% of indication value or ±1°C, whichever is greater) ±1 digit max.*1 Platinum resistance thermometer: (±0.2% of indication 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: Independent Heat & cool PID can be set by Auto-tuning.			
Self-Tuning		Yes			
Control output	Relay output	SPST-NO, 250 VAC, 2 A (resistive load), electrical life; 100,000 operations, minimum applicable load: 5 V, 10 mA (reference value)	SPST-NO, 250 VAC, 3 A (resistive load), electrical life; 100,000 operations, minimum applicable load: 5 V, 10 mA (reference value)	SPST-NO, 250 VAC, 5 A (resistive load), electrical life; 100,000 operations, minimum applicable load: 5 V, 10 mA (reference value)	
	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.)	
	Linear current output	4 to 20 mA DC/0 to 20 mA DC, load: 500 Ω max., resolution: approx. 10,000			
Auxiliary output	Number of outputs	1 or 2 (depends on model)	3	4	
	Output specifications	SPST-NO relay outputs, 250 VAC, : 2 A (resistive load), Electrical life: 100,000 operations, Minimum applicable load: 10 mA at 5 V (reference value)	SPST-NO relay outputs, 250 VAC, Models with 1 or 2 outputs: 3 A (resistive load), or Models with 3 outputs: 2 A (resistive load), Electrical life: 100,000 operations, Minimum applicable load: 10 mA at 5 V (reference value)	SPST-NO. relay outputs, 250 VAC, Models with 4 outputs: 2 A (resistive load), Electrical life: 100,000 operations, Minimum applicable load: 10 mA at 5 V (reference value)	
Event input	Number of inputs	1 or 2 (depends on model)	2 or 4 (depends on model)	2, 4 or 6 (depends on 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			
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 the event inputs, key operations, or serial communications.*2	Up to eight set points (SP0 to SP7) can be saved and selected using the event inputs, key operations, or serial communications.		
Other functions		Manual output, heating/cooling control, loop burnout alarm, SP ramp, other alarm functions, heater burnout (HB) alarm (including SSR failure (HS) alarm), 40% AT, 100% AT, MV limiter, input digital filter, self tuning, robust tuning, PV input shift, run/stop, protection functions, extraction of square root, MV change rate limit, logic operations, temperature status display, simple programming, moving average of input value, display brightness setting, simple transfer output, and work bit message*3			
Ambient operating temperature		–10 to 55°C (with no condensation or icing), for 3-year warranty: -10 to 50°C with standard mounting (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			
Input sampling period		50 ms			
Size in mm (HxWxD)		24×48×90 (Models with Screw Terminal Blocks)/ 24×48×93(Models with Screwless Clamp Terminal Blocks)	48×48×64	48×96×64	96×96×64

Note: *1. The indication accuracy of K thermocouples in the -200 to 1,300°C range, T and N thermocouples at a temperature of -100°C max., and U and L thermocouples at any temperatures is ±2°C ±1 digit max. The indication accuracy of the B thermocouple at a temperature of 400°C max. is not specified. The indication accuracy of B thermocouples at a temperature of 400 to 800°C is ±3°C max. The indication accuracy of the R and S thermocouples at a temperature of 200°C max. is ±3°C ±1 digit max. The indication accuracy of W thermocouples is (±0.3% of PV or ±3°C, whichever is greater) ±1 digit max. The indication accuracy of PL II thermocouples is (±0.3% of PV or ±2°C, whichever is greater) ±1 digit max.

*2. Only four set points are selectable for event inputs.

*3. Simple transfer output, and work bit message are only for E5GC.

High performance & DIN-Track Mounting

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 LCD display have been integrated into a space-saving housing.

- Fast and precise regulation: 50ms sampling loop period time
- Easy to set up, and operate intuitively via CX-Thermo without power supply
- Removable terminal block for easy mounting and replacement.*
- Useful alarm and diagnosis functions for secure operation

* Only for E5DC

Specifications

		E5CC-U	E5DC
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		Models with option selection of 000: 5.2 VA max. at 100 to 240 VAC, and 3.1 VA max. at 24 VAC or 1.6 W max. at 24 VDC All other models: 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	4.9 VA max. at 100 to 240 VAC, and 2.8 VA max. at 24 VDC or 1.5 W max. at 24 VDC
Sensor input		– Temperature input Thermocouple: K, J, T, E, L, U, N, R, S, B, W, or PL II Platinum resistance thermometer: Pt100 or JPt100 Infrared temperature sensor (ES1B): 10 to 70°C, 60 to 120°C, 115 to 165°C, or 140 to 260°C – Analog input Current input: 4 to 20 mA or 0 to 20 mA Voltage input: 1 to 5 V, 0 to 5 V, 0 to 10 V,or 0 to 50 mV (The 0 to 50 mV range applies to the E5CC-U only for those manufactured in May 2014 or later.)	
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 (at the ambient temperature of 23°C) (When mounted individually for E5DC)		Thermocouple: (±1% of indication value or ±2°C, whichever is greater) ±1 digit max.*1 Platinum resistance thermometer: (±0.2% of indication value or ±0.8°C, whichever is greater) ±1 digit max. Analog input: ±0.2% FS ±1 digit max.	Thermocouple: (±0.3% of indication value or ±1°C, whichever is greater) ±1 digit max.*1 Platinum resistance thermometer: (±0.2% of indication 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.
Auto-Tuning		Yes, 40%/100% MV output limit selection. When using Heat/Cool: Independent Heat & cool PID can be set by Auto-tuning.	
Self-Tuning		Yes	
Control output	Relay output	SPDT, 250 VAC, 3 A (resistive load), electrical life: 100,000 operations, minimum applicable load: 5 V, 10 mA (reference value)	SPST-NO, 250 VAC, 3 A (resistive load), electrical life; 100,000 operations minimum applicable load: 5 V, 10 mA (reference value)
	Voltage output (for driving SSR)	Output voltage 12 VDC ±20% (PNP), max. load current: 21 mA, with short-circuit protection circuit	
	Linear current output	4 to 20 mA DC/0 to 20 mA DC, load: 500 Ω max., resolution: approx. 10,000	
Auxiliary output	Number of outputs	1 or 2 (depends on model)	2 (depends on model)
	Output specifications	SPST-NO relay outputs, 250 VAC, Models with 1 or 2 outputs: 3 A (resistive load), or Models with 3 outputs: 2 A (resistive load), Electrical life: 100,000 operations, Minimum applicable load: 10 mA at 5 V (reference value)	SPST-NO relay outputs, 250 VAC, 2 A (resistive load), Electrical life: 100,000 operations, Minimum applicable load: 10mA at 5V (reference value)
Event input	Number of inputs	-	1 (depends on 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	
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 the event inputs, key operations, or serial communications.	Up to eight set points (SP0 to SP7) can be saved and selected using the event inputs, key operations, or serial communications.*2
Other functions		Manual output, heating/cooling control, loop burnout alarm, SP ramp, other alarm functions, heater burnout (HB) alarm (including SSR failure (HS) alarm), 40% AT, 100% AT, MV limiter, input digital filter, self tuning, robust tuning, PV input shift, run/stop, protection functions, extraction of square root, MV change rate limit, logic operations, temperature status display, simple programming, moving average of input value, and display brightness setting	
Ambient operating temperature		–10 to 55°C (with no condensation or icing), for 3-year warranty: -10 to 50°C with standard mounting (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: IP50, Rear case: IP20, Terminals: IP00	Main unit: IP20, Terminal unit: IP00
Input sampling period		50 ms	
Size in mm (HxWxD)		48×48×76.8	96×22.5×85

Note: *1. The indication accuracy of K thermocouples in the -200 to 1,300°C range, T and N thermocouples at a temperature of -100°C max., and U and L thermocouples at any temperatures is ±2°C ±1 digit max. The indication accuracy of the B thermocouple at a temperature of 400°C max. is not specified. The indication accuracy of B thermocouples at a temperature of 400 to 800°C is ±3°C max. The indication accuracy of the R and S thermocouples at a temperature of 200°C max. is ±3°C ±1 digit max. The indication accuracy of W thermocouples is (±0.3% of PV or ±3°C, whichever is greater) ±1 digit max. The indication accuracy of PL II thermocouples is (±0.3% of PV or ±2°C, whichever is greater) ±1 digit max.

*2. Only two set points are selectable for event inputs.