OMRON

Digital temperature and process controllers

E5_C Series

- Feature-rich and high speed temperature controller
- User-friendly set-up and operation
- Programmable types for processing applications

industrial.omron.eu/e5_c

Next generation of controllers

Our E5_C series raises the bar of temperature control. This next generation controller sets a new global standard in user-friendliness, precision and control performance. It will save you setup and operation time and will comfortably enable faster, more accurate monitoring of control processes. It's high visibility interface offers exceptional clarity, virtually eliminating the possibility for human error. The E5_C improves on our existing temperature controllers, incorporating our patented PID control system, intuitive operation and an increased ability to handle multi-functional in- and output types. In a class of it's own, the E5_C can cover virtually any general-purpose demand.

Auto-tuning

Changes in ambient or processing conditions can be both planned and unforeseen. In either case, a responsive auto-tuning algorithm will manage these variations quickly. This precision auto-tuning finds the right PID settings and reacts fast to any fluctuations.

PID control

The E5_C series by design has been developed for high-sampling speeds. It uses a powerful algorithm to enhance control stability.

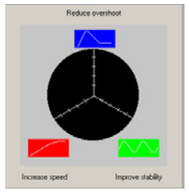
This 2-PID innovation offers high precision advantages over standard controllers, providing greater security and safeguarding of product quality.

High-contrast

Control rooms are generally known to have subdued lighting conditions. This is a key factor on which the E5_C outperforms. It's large, high-contrast, white LCD display enables clear visibility. View settings comfortably from greater distances and wider viewing angles. Be assured of accurate readings thanks to our clear data display.

Technologies

Patented PID algorithm ‘Tune and go’



- Different PID algorithms allow you to conveniently set the PID parameters, even under changing environmental conditions.
- With a simple software tool you can optimise controller behaviour. Have greater control over speed increases overshoot limitation, and stability improvement.
- Discover sealing quality increases due to faster response times to temperature anomalies.
- Auto-tuned rapid responsiveness positively influences machine availability, enabling practically no production loss.
- Unparalleled regulation performance virtually eliminates overshoot, helping machines to run smoothly and effectively.

Bright LCD display

- The compact E5_C display has been developed for optimum user-comfort and clear, unhindered viewing.
- The white LCD offers higher contrast on black panel instrumentation backgrounds, allowing clear and distinctive definition.
- Bright, oversized LCD technology means that the 15-18 mm display height gives maximum clarity for its size, ensuring accuracy and ease of use every time.

Intuitive software - quick setup and operation

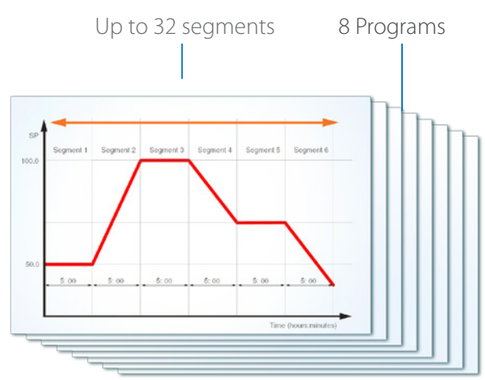
Using the instrument’s five front keys the E5_C series is giving you a maximum comfort for connecting, setting-up and operation. Our CX-Thermo software (designed specifically for the E5_C series) and new navigation assistant offer the fastest possible parameter setting, quick device adjustment and simpler maintenance. If you need to log your temperature curves on an external PC, the CX-Thermo software tracks your data in an organised and understandable way. In case of more complex configurations, the software allows you to intuitively parameterise the controller.

Programmable process control

The E5_C-T Ramp/Soak temperature controllers expands the E5_C family to handle process applications.

Capable of addressing up to 6 event inputs and up to 4 auxiliary outputs all in a compact 60 mm (depth) housing, makes this controller series one of Omron’s most powerful and versatile temperature controllers.

Set up to 8 programs with 32 segments totaling 256 program segments simply via CX-Thermo software.



Family E5_C & cross selling

“We are family”

E5_C Standard

E5_C –T Programmer

Model name	DIN size	Dimensions	ON-/In-Panel	361 ° - Line type
E5GC	1/32 DIN	(24 x 48 x 90) mm	On-Panel	Pro-Line
E5CC	1/16 DIN	(48 x 48 x 60) mm	On-Panel	Pro-Line
E5EC	1/8 DIN	(48 x 96x 60) mm	On-Panel	Pro-Line
E5AC	¼ DIN	(96 x 96x 60) mm	On-Panel	Pro-Line
E5CC-U	1/16 DIN	(48 x 48 x 60) mm	On-Panel	Pro-Line
E5DC	22,5 mm DIN rail	(22,5x 96 x 85) mm	In-Panel	Pro-Line
E5CC-T	1/16 DIN	(48 x 48 x 60) mm	On-Panel	Pro^{plus}-Line
E5EC-T	1/8 DIN	(48 x 96x 60) mm	On-Panel	Pro^{plus}-Line
E5AC-T	¼ DIN	(96 x 96x 60) mm	On-Panel	Pro^{plus}-Line

Closing the (Control) loop…

Temperature controller + Solid State Relay + Temperature Sensor in one

Good regulation results don’t necessarily need to be expensive.
To achieve the best results in the regulation process we’d recommend you to purchase the complete package from Omron. All parts of the control loop harmonise and assure stable conditions for many years.

We offer you a wide range of Solid State Relays with different driving currents and zero/ non-zero crossing functions. Add to that multiple simple temperature sensors of various shapes and temperature ranges, allowing you to get all the relevant parts at once for a quick machine setup.

Special tube lengths and cable confectioning can also be provided without needing to order large quantities.

Temperature controller
E5_C / -T

Solid state relays
G3PE / G3NA

Temperature sensors
E52-E

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 spacing-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 contrasty display using white LCD technology which is visible from a far distance and from any angle
- Useful alarm and diagnosis functions for secure operation
- Practical timer and logic operation functions eliminating the need of a PLC

PRO

Ordering information

E5CC (all models 3 auxiliary outputs)

Output	Option No.	Fixed option	Order code	
			110-240 VAC	24 VAC/VDC
Out1: Relay Out2: non	–	–	E5CC-RX3A5M-000	E5CC-RX3D5M-000
	001	Event input 2, Heater burnout SSR defect detection	E5CC-RX3A5M-001	E5CC-RX3D5M-001
	003	Communication 3-phase heater alarm	E5CC-RX3A5M-003	E5CC-RX3D5M-003
	005	Event input 4	E5CC-RX3A5M-005	E5CC-RX3D5M-005
	006	Event input 2, Transfer output	E5CC-RX3A5M-006	E5CC-RX3D5M-006
	007	Event input 2, Remote SP	E5CC-RX3A5M-007	E5CC-RX3D5M-007
Out1: Voltage (pulse) Out2: non	–	–	E5CC-QX3A5M-000	E5CC-QX3D5M-000
	001	Event input 2, Heater burnout SSR defect detection	E5CC-QX3A5M-001	E5CC-QX3D5M-001
	003	Communication 3-phase heater alarm	E5CC-QX3A5M-003	E5CC-QX3D5M-003
	005	Event input 4	E5CC-QX3A5M-005	E5CC-QX3D5M-005
	006	Event input 2, Transfer output	E5CC-QX3A5M-006	E5CC-QX3D5M-006
	007	Event input 2, Remote SP	E5CC-QX3A5M-007	E5CC-QX3D5M-007
Out1: Voltage (pulse) Out2: Voltage (pulse)	–	–	E5CC-QQ3A5M-000	E5CC-QQ3D5M-000
	001	Event input 2, Heater burnout SSR defect detection	E5CC-QQ3A5M-001	E5CC-QQ3D5M-001
	003	Communication 3-phase heater alarm	E5CC-QQ3A5M-003	E5CC-QQ3D5M-003
	005	Event input 4	E5CC-QQ3A5M-005	E5CC-QQ3D5M-005
	006	Event input 2, Transfer output	E5CC-QQ3A5M-006	E5CC-QQ3D5M-006
	007	Event input 2, Remote SP	E5CC-QQ3A5M-007	E5CC-QQ3D5M-007
Out1: Linear current Out2: non	–	–	E5CC-CX3A5M-000	E5CC-CX3D5M-000
	004	Event input 2, Communication	E5CC-CX3A5M-004	E5CC-CX3D5M-004
	005	Event input 4	E5CC-CX3A5M-005	E5CC-CX3D5M-005
	006	Event input 2, Transfer output	E5CC-CX3A5M-006	E5CC-CX3D5M-006
	007	Event input 2, Remote SP	E5CC-CX3A5M-007	E5CC-CX3D5M-007
Out1: Linear current Out2: Voltage (pulse)	–	–	E5CC-CQ3A5M-000	E5CC-CQ3D5M-000
	001	Event input 2, Heater burnout SSR defect detection	E5CC-CQ3A5M-001	E5CC-CQ3D5M-001
	003	Communication 3-phase heater alarm	E5CC-CQ3A5M-003	E5CC-CQ3D5M-003
	005	Event input 4	E5CC-CQ3A5M-005	E5CC-CQ3D5M-005
	006	Event input 2, Transfer output	E5CC-CQ3A5M-006	E5CC-CQ3D5M-006
	007	Event input 2, Remote SP	E5CC-CQ3A5M-007	E5CC-CQ3D5M-007

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

E5EC/E5AC (all models 4 auxiliary outputs)

Output	Option No	Fixed option	Order code	
			110-240 VAC	24 VAC/VDC
Out1: Relay Out2: non	–	–	E5_C-RX4A5M-000	E5_C-RX4D5M-000
	009	Event input 2, Communication 3-phase heater alarm	E5_C-RX4A5M-009	E5_C-RX4D5M-009
	010	Event input 4, Heater burnout SSR defect detection	E5_C-RX4A5M-010	E5_C-RX4D5M-010
	011	Event input 6, Remote SP Heater burnout SSR defect detection, Transfer output	E5_C-RX4A5M-011	E5_C-RX4D5M-011
Out1: Voltage (pulse) Out2: non	–	–	E5_C-QX4A5M-000	E5_C-QX4D5M-000
	009	Event input 2, Communication 3-phase heater alarm	E5_C-QX4A5M-009	E5_C-QX4D5M-009
	010	Event input 4, Heater burnout SSR defect detection	E5_C-QX4A5M-010	E5_C-QX4D5M-010
	011	Event input 6, Remote SP Heater burnout SSR defect detection, Transfer output	E5_C-QX4A5M-011	E5_C-QX4D5M-011
Out1: Relay Out2: Relay	–	–	E5_C-RR4A5M-000	E5_C-RR4D5M-000
	009	Event input 2, Communication 3-phase heater alarm	E5_C-RR4A5M-009	E5_C-RR4D5M-009
	010	Event input 4, Heater burnout SSR defect detection	E5_C-RR4A5M-010	E5_C-RR4D5M-010
	011	Event input 6, Remote SP Heater burnout SSR defect detection, Transfer output	E5_C-RR4A5M-011	E5_C-RR4D5M-011
Out1: Voltage (pulse) Out2: Voltage (pulse)	–	–	E5_C-QQ4A5M-000	E5_C-QQ4D5M-000
	009	Event input 2, Communication 3-phase heater alarm	E5_C-QQ4A5M-009	E5_C-QQ4D5M-009
	010	Event input 4, Heater burnout SSR defect detection	E5_C-QQ4A5M-010	E5_C-QQ4D5M-010
	011	Event input 6, Remote SP Heater burnout SSR defect detection, Transfer output	E5_C-QQ4A5M-011	E5_C-QQ4D5M-011
Out1: Voltage (pulse) Out2: Relay	–	–	E5_C-QR4A5M-000	E5_C-QR4D5M-000
	009	Event input 2, Communication 3-phase heater alarm	E5_C-QR4A5M-009	E5_C-QR4D5M-009
	010	Event input 4, Heater burnout SSR defect detection	E5_C-QR4A5M-010	E5_C-QR4D5M-010
	011	Event input 6, Remote SP Heater burnout SSR defect detection, Transfer output	E5_C-QR4A5M-011	E5_C-QR4D5M-011
Out1: Linear current Out2: non	–	–	E5_C-CX4A5M-000	E5_C-CX4D5M-000
	004	Event input 2, Communication	E5_C-CX4A5M-004	E5_C-CX4D5M-004
	005	Event input 4	E5_C-CX4A5M-005	E5_C-CX4D5M-005
	013	Event input 6, Remote SP, Transfer output	E5_C-CX4A5M-013	E5_C-CX4D5M-013
	014	Event input 4, Communication Remote SP, Transfer output	E5_C-CX4A5M-014	E5_C-CX4D5M-014
Out1: Linear current Out2: Linear current	–	–	E5_C-CC4A5M-000	E5_C-CC4D5M-000
	004	Event input 2, Communication	E5_C-CC4A5M-004	E5_C-CC4D5M-004
	005	Event input 4	E5_C-CC4A5M-005	E5_C-CC4D5M-005
	013	Event input 6, Remote SP Transfer output	E5_C-CC4A5M-013	E5_C-CC4D5M-013
	014	Event input 4, Communication Remote SP, Transfer output	E5_C-CC4A5M-014	E5_C-CC4D5M-014
Out1: Linear current Out2: Voltage (pulse)	–	–	E5_C-CQ4A5M-000	E5_C-CQ4D5M-000
	009	Event input 2, Communication 3-phase heater alarm	E5_C-CQ4A5M-009	E5_C-CQ4D5M-009
	010	Event input 4, Heater burnout SSR defect detection	E5_C-CQ4A5M-010	E5_C-CQ4D5M-010
	011	Event input 6, Remote SP Heater burnout SSR defect detection, Transfer output	E5_C-CQ4A5M-011	E5_C-CQ4D5M-011
Out1: Relay*1 Out2: Relay*1	–	–	E5_C-PR4A5M-000	E5_C-PR4D5M-000
	004	Event input 2, Communication	E5_C-PR4A5M-004	E5_C-PR4D5M-004
	014	Event input 4, Communication Remote SP, Transfer output	E5_C-PR4A5M-014	E5_C-PR4D5M-014

*1 Position proportional control model

E5GC (models with 0, 1 or 2 auxiliary outputs)

Output	Terminal type	Option No	Fixed option	Order code	
				110-240 VAC	24 VAC/VDC
Out 1: Relay	Screw terminals (with cover)	–	–	E5GC-RXOA6M-OOO	E5GC-RXOD6M-OOO
				E5GC-RX1A6M-OOO	E5GC-RX106M-OOO
				E5GC-RX2A6M-OOO	E5GC-RX206M-OOO
		015	Communication	E5GC-RX1A6M-015	E5GC-RX106M-015
				E5GC-RX2A6M-015	E5GC-RX206M-015
		016	Event input 1	E5GC-RX2A6M-016	E5GC-RX206M-016
		023	Heater Burnout SSR defect detection	E5GC-RX2A6M-023	E5GC-RX206M-023
		024	Event input 2	E5GC-RX1A6M-024	E5GC-RX106M-024
	Screwless clamp terminal	–	–	E5GC-RXOACM-OOO	E5GC-RXODCM-OOO
				E5GC-RX1ACM-OOO	E5GC-RX1DCM-OOO
				E5GC-RX2ACM-OOO	E5GC-RX2DCM-OOO
		015	Communication	E5GC-RX1ACM-015	E5GC-RX1DCM-015
				E5GC-RX2ACM-015	E5GC-RX2DCM-015
		016	Event input 1	E5GC-RX2ACM-016	E5GC-RXZDCM-016
		023	Heater Burnout SSR defect detection	E5GC-RX2ACM-023	E5GC-RXZDCM-023
		024	Event input 2	E5GC-RX1ACM-024	E5GC-RX1DCM-024
Out 1: Voltage (pulse)	Screw terminals (with cover)	–	–	E5GC-OXOA6M-OOO	E5GC-OXOD6M-OOO
				E5GC-OX1A6M-OOO	E5GC-OX106M-OOO
				E5GC-OX2A6M-OOO	E5GC-OX206M-OOO
		015	Communication	E5GC-OX1A6M-015	E5GC-OX106M-015
				E5GC-OX2A6M-015	E5GC-OX206M-015
		016	Event input 1	E5GC-OX2A6M-016	E5GC-OX206M-016
		023	Heater Burnout SSR defect detection	E5GC-OX2A6M-023	E5GC-OX206M-023
		024	Event input 2	E5GC-OX1A6M-024	E5GC-OX106M-024
	Screwless clamp terminal	–	–	E5GC-OXOACM-OOO	E5GC-OXODCM-OOO
				E5GC-OX1ACM-OOO	E5GC-OX1DCM-OOO
				E5GC-OX2ACM-OOO	E5GC-OX2DCM-OOO
		015	Communication	E5GC-OX1ACM-015	E5GC-OX1DCM-015
				E5GC-OX2ACM-015	E5GC-OX2DCM-015
		016	Event input 1	E5GC-OX2ACM-016	E5GC-OX2DCM-016
		023	Heater Burnout SSR defect detection	E5GC-OX2ACM-023	E5GC-OX2DCM-023
		024	Event input 2	E5GC-OX1ACM-024	E5GC-OX1DCM-024
Out 1: Liner current	Screw terminals (with cover)	–	–	E5GC-CXOA6M-OOO	E5GC-CXOD6M-OOO
				E5GC-CX1A6M-OOO	E5GC-CX106M-OOO
				E5GC-CX2A6M-OOO	E5GC-CX206M-OOO
		015	Communication	E5GC-CX1A6M-015	E5GC-CX106M-015
				E5GC-CX2A6M-015	E5GC-CX206M-015
		016	Event input 1	E5GC-CX2A6M-016	E5GC-CX206M-016
		024	Event input 2	E5GC-CX1A6M-024	E5GC-CX106M-024
	Screwless clamp terminal	–	–	E5GC-CXOACM-000	E5GC-CXODCM-000
				E5GC-CX1ACM-OOO	E5GC-CX10CM-OOO
				E5GC-CX2ACM-OOO	E5GC-CX20CM-OOO
		015	Communication	E5GC-CX1ACM-015	E5GC-CX10CM-015
				E5GC-CX2ACM-015	E5GC-CX20CM-015
		016	Event input 1	E5GC-CX2ACM-016	E5GC-CX20CM-016
		024	Event input 2	E5GC-CX1ACM-024	E5GC-CX10CM-024

E5DC (models with 0 or 2 auxiliary outputs)

Output	Option No	Fixed option	Order code	
			110-240 VAC	24 VAC/VDC
Out1: Relay	–	–	E5DC-RX2ASM-000	E5DC-RX2DSM-000
	002	Communication, Heater Burnout SSR defect detection	E5DC-RX2ASM-002	E5DC-RX2DSM-002
	015	Communication	E5DC-RX0ASM-015*1	E5DC-RX0DSM-015*1
	017	Event Input 1, Heater Burnout SSR defect detection	E5DC-RX2ASM-017	E5DC-RX2DSM-017
Out1: Voltage (pulse)	–	–	E5DC-QX2ASM-000	E5DC-QX2DSM-000
	002	Communication, Heater Burnout SSR defect detection	E5DC-QX2ASM-002	E5DC-QX2DSM-002
	015	Communication	E5DC-QX0ASM-015*1	E5DC-QX0DSM-015*1
	017	Event Input 1, Heater Burnout SSR defect detection	E5DC-QX2ASM-017	E5DC-QX2DSM-017
Out1: Linear curent	–	–	E5DC-CX2ASM-000	E5DC-CX2DSM-000
	015	Communication	E5DC-CX0ASM-015*1	E5DC-CX0DSM-015*1
	015	Communication	E5DC-CX2ASM-015	E5DC-CX2DSM-015
	016	Event Input 1	E5DC-CX2ASM-016	E5DC-CX2DSM-016

*1 Auxiliary outputs are not possible for these models.

E5_C optional tools

Option	Order code
USB based configuration cable	E58-CIFQ2, E58-CIFQ2-E (for E5AC, E5DC, E5EC and E5GC)
PC based configuration and tuning software	EST2-2C-MV4

Specifications

E5CC/E5EC/E5AC

Item		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 (ES1B): 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.)	
	Linear 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 (H×W×D)		48×48×64	48×96×64	96×96×64

E5GC

Item		E5GC
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
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
Control method		ON/OFF control or 2-PID control (with auto-tuning)
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)
	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)
	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)
Indication method		11-segment digital displays and individual indicators Character height: PV: 10.5 mm, SV: 5.0 mm
Multi SP		Up to eight set points (SP0 to SP7) can be saved and selected using the event inputs, key operations, or serial communications.*1
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.*2
Size in mm (H×W×D)		24×48×93

*1 Only four set points are selectable for event inputs.
*2 Simple transfer output and work bit message are only for E5GC.

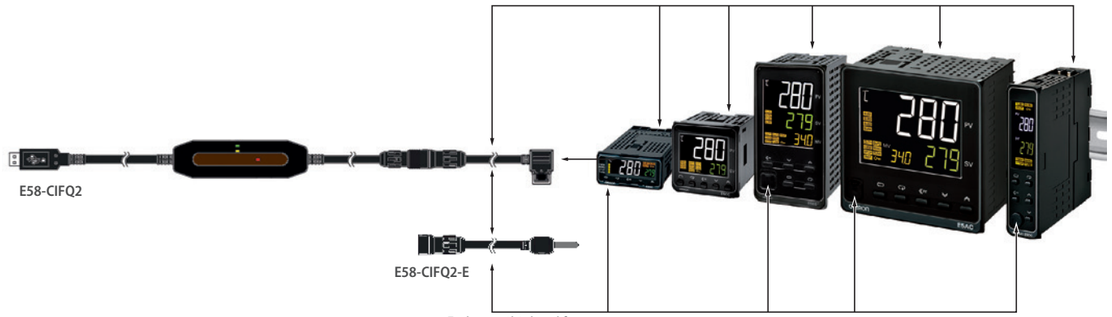
E5DC

Item		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		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 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 (ES1B): 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 PV or ±1°C, whichever is greater) ±1 digit max. Platinum resistance thermometer input: (±0.2% of PV 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: 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
	Voltage output (for driving SSR)	Output voltage: 12 VDC ±20% (PNP), max. load current: 20 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 outputs	Number of outputs	2 (depends on model)
	Output specifications	SPST-NO relay outputs: 250 VAC, 2 A (resistive load), Electrical life: 100,000 operations, minimum applicable load: 5 V, 10 mA
Event inputs	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 displays and individual indicators Character height: PV 8.5 mm, SV: 8.0 mm
Multi SP		Up to eight set points (SP0 to SP7) can be saved and selected using event inputs, key operations, or serial communications.*1
Other functions		Manual output, heating/cooling control, loop burnout alarm, SP ramp, other alarm functions, heater burnout (HB) alarm (including SSR failure (HB) 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, simple calculations, 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 no condensation or icing)
Ambient operating humidity		25% to 85%
Storage temperature		–25 to 65°C (with no condensation or icing)
Degree of protection		Main unit: IP20, Terminal unit: IP00
Sampling period		50 ms
Size in mm (H×W×D)		96×22.5×85

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

USB communication cable E58-CIFQ2

Item	E5AC	E5CC	E5DC	E5EC	E5GC
E58-CIFQ2	■	■	■	■	■
E58-CIFQ2-E	■	–	■	■	■



Compact and intelligent Ramp/Soak controller

The E5_C-T Ramp/Soak temperature controllers expands the E5_C family to handle process applications. Capable of addressing up to 6 event inputs and up to 4 auxiliary outputs all in a compact 60 mm (depth) housing, makes this controller series one of Omron's most powerful and versatile temperature controllers.

- Set up to 8 programs with 32 segments totaling 256 program segments simply via CX-Thermo software.
- The three-level display is visible simultaneously so each process status can be easily identified.
- "Segment Jump" allows users to move directly to the specified segment reducing programming time and increase production throughput.

Ordering information

E5CC-T

Input	Output	Alarms	HB*1 alarm & SSR*2 defect detection	Comm. (RS-485)	Event Input	Transfer output	Order code	
							100 to 240 VAC	24 VAC/VDC
Temperature sensor/ analog	Out 1: Relay Out 2: None	3	–	–	–	–	E5CC-TRX3A5M-000	E5CC-TRX3D5M-000
			1		2		E5CC-TRX3A5M-001	E5CC-TRX3D5M-001
			2*3	1	–		E5CC-TRX3A5M-003	E5CC-TRX3D5M-003
			–		2		E5CC-TRX3A5M-004	E5CC-TRX3D5M-004
				–	4		E5CC-TRX3A5M-005	E5CC-TRX3D5M-005
					2	Y	E5CC-TRX3A5M-006	E5CC-TRX3D5M-006
	Out 1: Voltage (pulse) Out 2: None				–	–	E5CC-TQX3A5M-000	E5CC-TQX3D5M-000
			1		2		E5CC-TQX3A5M-001	E5CC-TQX3D5M-001
			2*3	1	–		E5CC-TQX3A5M-003	E5CC-TQX3D5M-003
			–		2		E5CC-TQX3A5M-004	E5CC-TQX3D5M-004
				–	4		E5CC-TQX3A5M-005	E5CC-TQX3D5M-005
					2	Y	E5CC-TQX3A5M-006	E5CC-TQX3D5M-006
	Out 1: Current linear Out 2: None				–	–	E5CC-TCX3A5M-000	E5CC-TCX3D5M-000
				1	2		E5CC-TCX3A5M-004	E5CC-TCX3D5M-004
				–	4		E5CC-TCX3A5M-005	E5CC-TCX3D5M-005
					2	Y	E5CC-TCX3A5M-006	E5CC-TCX3D5M-006
	Out 1: Voltage (pulse) Out 2: Voltage (pulse)				–	–	E5CC-TQQ3A5M-000	E5CC-TQQ3D5M-000
			1		2		E5CC-TQQ3A5M-001	E5CC-TQQ3D5M-001
			2*3	1	–		E5CC-TQQ3A5M-003	E5CC-TQQ3D5M-003
			–		2		E5CC-TQQ3A5M-004	E5CC-TQQ3D5M-004
				–	4		E5CC-TQQ3A5M-005	E5CC-TQQ3D5M-005
					2	Y	E5CC-TQQ3A5M-006	E5CC-TQQ3D5M-006
	Out 1: Current linear Out 2: Voltage (pulse)				–	–	E5CC-TCQ3A5M-000	E5CC-TCQ3D5M-000
				1	2		E5CC-TCQ3A5M-004	E5CC-TCQ3D5M-004
				–	4		E5CC-TCQ3A5M-005	E5CC-TCQ3D5M-005
					2	Y	E5CC-TCQ3A5M-006	E5CC-TCQ3D5M-006

*1 HB = Heater burnout
*2 SSR = Solid state relay
*3 3-Phase heater burnout alarm

E5AC-T/E5EC-T

Input	Output	Alarms	HB*1 alarm & SSR*2 defect detection	Comm. (RS-485)	Event Input	Transfer output	Order code*3	
							Model: 100 to 240 VAC	Model: 24 VAC/VDC
Temperature sensor/ analog	Out 1: Relay Out 2: None	4	–	–	–	–	E5_C-TRX4A5M-000	E5_C-TRX4D5M-000
			1	1	2		E5_C-TRX4A5M-008	E5_C-TRX4D5M-008
				–	4		E5_C-TRX4A5M-010	E5_C-TRX4D5M-010
					6	Y	E5_C-TRX4A5M-019	E5_C-TRX4D5M-019
	Out 1: Voltage (pulse) Out 2: None		–		–	–	E5_C-TQX4A5M-000	E5_C-TQX4D5M-000
			1	1	2		E5_C-TQX4A5M-008	E5_C-TQX4D5M-008
				–	4		E5_C-TQX4A5M-010	E5_C-TQX4D5M-010
					6	Y	E5_C-TQX4A5M-019	E5_C-TQX4D5M-019
	Out 1: Current linear Out 2: None		–		–	–	E5_C-TCX4A5M-000	E5_C-TCX4D5M-000
				1	2		E5_C-TCX4A5M-004	E5_C-TCX4D5M-004
				–	4		E5_C-TCX4A5M-005	E5_C-TCX4D5M-005
					6	Y	E5_C-TCX4A5M-021	E5_C-TCX4D5M-021
				1	4	Y	E5_C-TCX4A5M-022	E5_C-TCX4D5M-022

*1 HB = Heater burnout
*2 SSR = Solid state relay
*3 Replace "_" with "A" for E5AC or "E" for E5EC

E5AC-T/E5EC-T

Input	Output	Alarms	HB*1 alarm & SSR*2 defect detection	Comm. (RS-485)	Event Input	Transfer output	Order code*3	
							Model: 100 to 240 VAC	Model: 24 VAC/VDC
Temperature sensor/ analog	Out 1: Current linear Out 2: Current linear	4	–	–	–	–	E5_C-TCC4A5M-000	E5_C-TCC4D5M-000
				1	2		E5_C-TCC4A5M-004	E5_C-TCC4D5M-004
				–	4		E5_C-TCC4A5M-005	E5_C-TCC4D5M-005
					6	Y	E5_C-TCC4A5M-021	E5_C-TCC4D5M-021
				1	4	Y	E5_C-TCC4A5M-022	E5_C-TCC4D5M-022
	Out 1: Relay Out 2: Relay			–	–	–	E5_C-TRR4A5M-000	E5_C-TRR4D5M-000
			1	1	2		E5_C-TRR4A5M-008	E5_C-TRR4D5M-008
				–	4		E5_C-TRR4A5M-010	E5_C-TRR4D5M-010
					6	Y	E5_C-TRR4A5M-019	E5_C-TRR4D5M-019
	Out 1: Voltage (pulse) Out 2: Voltage (pulse)				–	–	E5_C-TQQ4A5M-000	E5_C-TQQ4D5M-000
			1	1	2		E5_C-TQQ4A5M-008	E5_C-TQQ4D5M-008
				–	4		E5_C-TQQ4A5M-010	E5_C-TQQ4D5M-010
					6	Y	E5_C-TQQ4A5M-019	E5_C-TQQ4D5M-019
	Out 1: Voltage (pulse) Out 2: Relay				–	–	E5_C-TQR4A5M-000	E5_C-TQR4D5M-000
			1	1	2		E5_C-TQR4A5M-008	E5_C-TQR4D5M-008
				–	4		E5_C-TQR4A5M-010	E5_C-TQR4D5M-010
					6	Y	E5_C-TQR4A5M-019	E5_C-TQR4D5M-019
	Out 1: Current linear Out 2: Voltage (pulse)				–	–	E5_C-TCQ4A5M-000	E5_C-TCQ4D5M-000
			1	1	2		E5_C-TCQ4A5M-008	E5_C-TCQ4D5M-008
				–	4		E5_C-TCQ4A5M-010	E5_C-TCQ4D5M-010
					6	Y	E5_C-TCQ4A5M-019	E5_C-TCQ4D5M-019
	Out 1: Relay Out 2: Relay (Valve control)				–	–	E5_C-TPR4A5M-000	E5_C-TPR4D5M-000
				1	2		E5_C-TPR4A5M-004	E5_C-TPR4D5M-004
					4	Y	E5_C-TPR4A5M-022	E5_C-TPR4D5M-022

*1 HB = Heater burnout
*2 SSR = Solid state relay
*3 Replace "_" with "A" for E5AC or "E" for E5EC

Specifications

E5CC-T/E5AC-T/E5EC-T

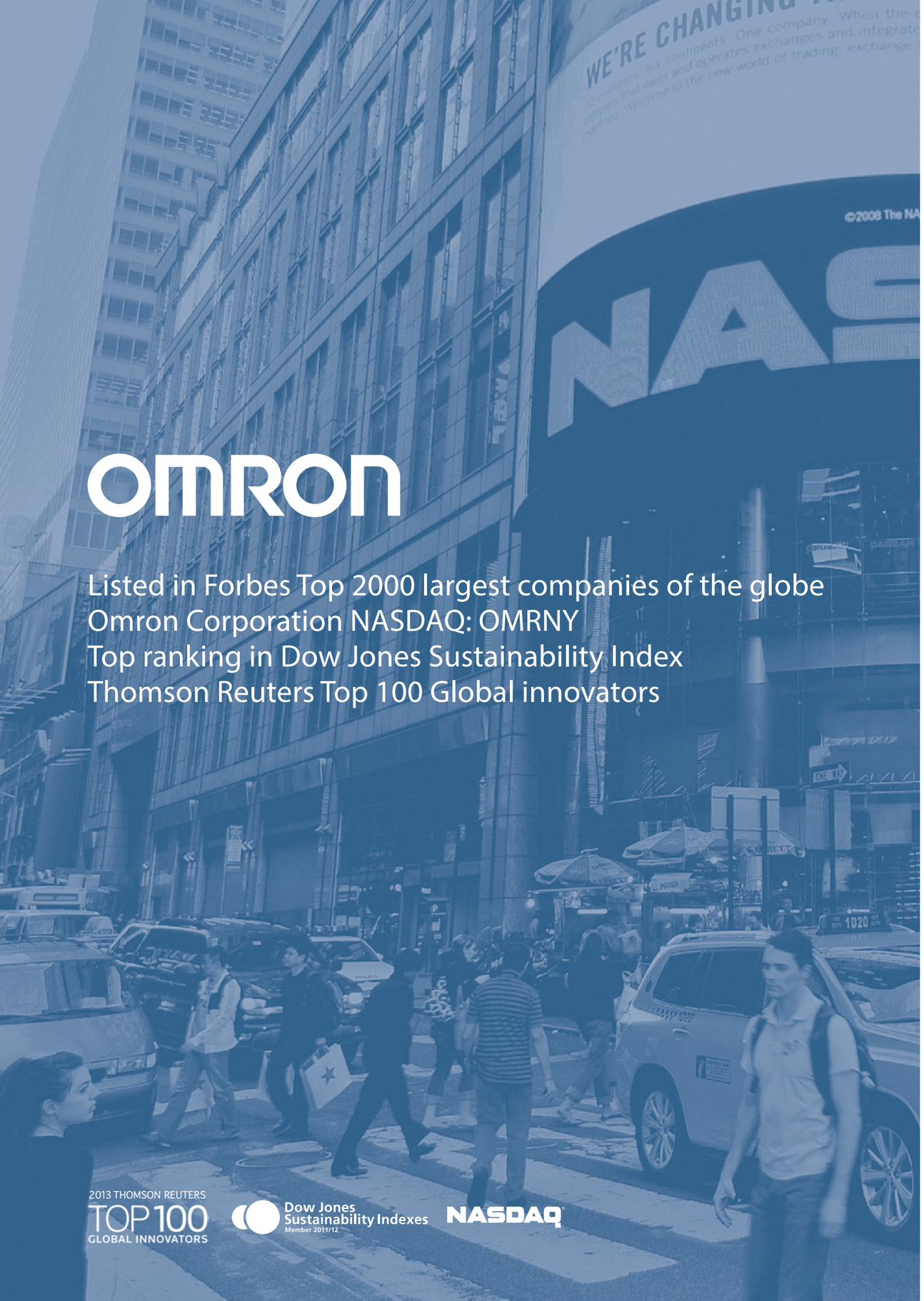
	E5CC-T	E5EC-T	E5AC-T
Sizes in mm (W × H × D)	48×48×60	48×96×60	96×96×60
Supply voltage	100 to 240 VAC 50/60Hz or 24 VAC/VDC		
Sensor input	Temperature input Thermocouple: K, J, T, E, L, U, N, R, S, B, W, or PL II Platinum resistance thermometer: Pt100 or JPt100 Infrared temperature sensor (ES1B): 10 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		
Control mode	2-PID control (with auto-tuning) or ON/OFF control		
Accuracy	Thermocouple: (±0.3% of indication value or ±1°C, whichever is greater) ±1 digit max. /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.		
Functions	Manual output, heating/cooling control, loop burnout alarm, other alarm functions, heater burnout (HB) alarm (including SSR failure (HS) alarm), 40% AT, 100% AT, MV limiter, input digital filter, robust tuning, PV input shift, protection functions, extraction of square root, MV change rate limit, logic operations, temperature status display, moving average of input value, and display brightness setting		
Programs / segments	8/32		
PID sets	8		
Communication	RS-485 (multi-drop), CompowayF or Modbus RTU		
Event inputs	2-6		
QLP (Quick link port)	Yes, via USB and E58-CIFQ2 conversion cable		
Ambient temperature	–10 to 55 °C		
IP rating of front panel	IP66		
Sampling period time	50 ms		

E5CC-T/E5AC-T/E5EC-T series optional tools

USB PC based configuration cable	E58-CIFQ2 for E5CC-T
	E58-CIFQ2 (& E58-CIFQ2-E) for E5AC-T and E5EC-T

E5CC-T/E5AC-T/E5EC-T series software

CX-Thermo >4.62	Professional parameterization and cloning software, data-logging, Fine-Tuning, logic operations, easy setting of process steps Operation system: Microsoft Windows XP (Service Pack 3 or higher)/Vista/7/8



Omron at a glance

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Sensing, Control Systems, Visualization, Drives, Robots, Safety,
Quality Control & Inspection, Control and Switching Components

7%

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11.000 + issued and pending patents

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Locations worldwide

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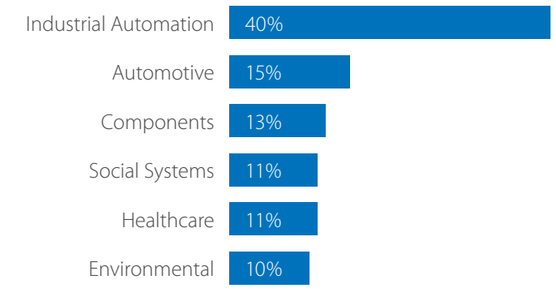
Working for the benefit of society



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