

**NO:** TC-072  
**DATE:** June 2014

**PRODUCT:** E5CN-U Temperature Controller  
**TYPE:** Discontinuation Notice

## E5CN-U Plug-in 1/16 DIN Temperature Controller will be Discontinued March 2015; Replace with E5CC-U Series

**Last order date:** March 2015

Note: Date is subject to change based on raw materials and components availability at the factory.

### Affected Parts

Product Discontinuation	Suggested Replacement
E5CN-RTDU AC/DC24	E5CC-RW0DUM-000
E5CN-QTDU AC/DC24	E5CC-QX0DUM-000
E5CN-R1TDU AC/DC24	E5CC-RW1DUM-000
E5CN-Q1TDU AC/DC24	E5CC-QX1DUM-000
E5CN-R2TDU AC/DC24	E5CC-RW2DUM-000
E5CN-Q2TDU AC/DC24	E5CC-QX2DUM-000
E5CN-CTU AC100-240	E5CC-CX0AUM-000
E5CN-C1TU AC100-240	E5CC-CX1AUM-000
E5CN-C2TU AC100-240	E5CC-CX2AUM-000
E5CN-CTDU AC/DC24	E5CC-CX0DUM-000
E5CN-C1TDU AC/DC24	E5CC-CX1DUM-000
E5CN-C2TDU AC/DC24	E5CC-CX2DUM-000
E5CN-RTU AC100-240	E5CC-RW0AUM-000
E5CN-QTU AC100-240	E5CC-QX0AUM-000
E5CN-R1TU AC100-240	E5CC-RW1AUM-000
E5CN-Q1TU AC100-240	E5CC-QX1AUM-000
E5CN-R2TU AC100-240	E5CC-RW2AUM-000
E5CN-Q2TU AC100-240	E5CC-QX2AUM-000
E5CN-C1LU AC100-240	E5CC-CX1AUM-000
E5CN-C2LU AC100-240	E5CC-CX2AUM-000
E5CN-R1LU AC100-240	E5CC-RW1AUM-000
E5CN-Q1LU AC100-240	E5CC-QX1AUM-000
E5CN-R2LU AC100-240	E5CC-RW2AUM-000
E5CN-Q2LU AC100-240	E5CC-QX2AUM-000



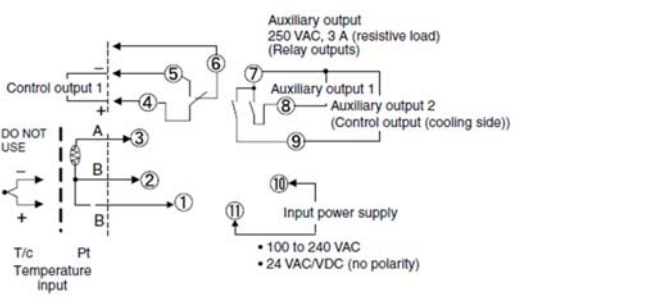
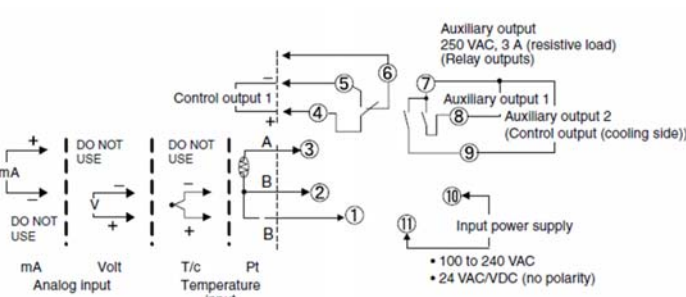
For details about the differences, see the following pages.

# Cautions on Applying Replacements

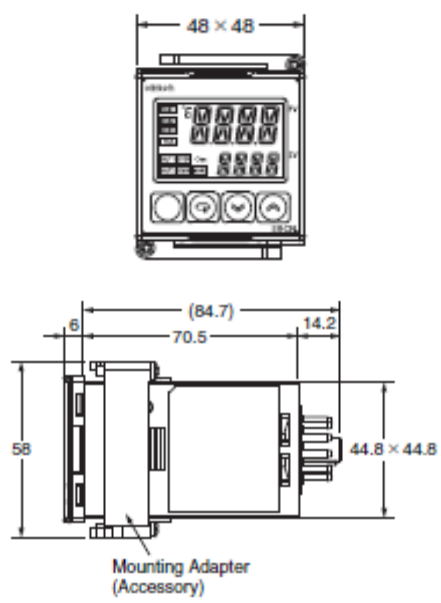
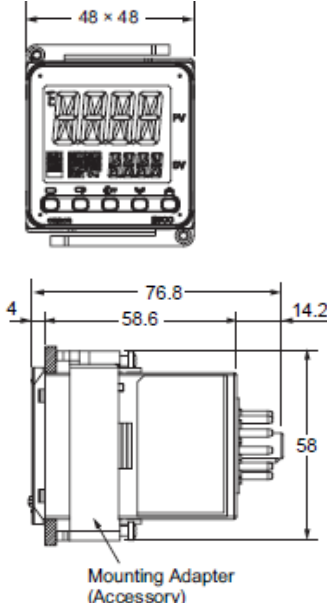
- E5CC-U does not directly support RS-232C communications. Connect interface converter K3SC series to enable RS-232C communications.
- When replacing models, be sure that Sysway Protocol is disabled; it is not supported by E5CC-U.
- Two auxiliary outputs and two event inputs cannot be used at the same time.
- The waterproof packing and mounting adapter for E5CC-U is different from E5CN-U. Do not try to mount E5CC-U using E5CN-U mounting adapter and waterproof packing.

## Detail of Differences

### Wiring Diagrams

Product discontinuation Model E5CN-U series	Recommended replacement Model E5CC-U series
<p><b>Terminal arrangement</b> E5CN-U Terminal Arrangement is the same as E5CC-U</p>  <p>Auxiliary output 250 VAC, 3 A (resistive load) (Relay outputs)</p> <p>Control output 1</p> <p>DO NOT USE</p> <p>A</p> <p>B</p> <p>B</p> <p>①</p> <p>②</p> <p>③</p> <p>④</p> <p>⑤</p> <p>⑥</p> <p>⑦</p> <p>⑧</p> <p>⑨</p> <p>⑩</p> <p>⑪</p> <p>Input power supply</p> <ul style="list-style-type: none"> <li>• 100 to 240 VAC</li> <li>• 24 VAC/VDC (no polarity)</li> </ul> <p>T/c Temperature input</p> <p>Pt Temperature input</p>	<p><b>Terminal arrangement</b> E5CN-U Terminal Arrangement is the same as E5CC-U</p>  <p>Auxiliary output 250 VAC, 3 A (resistive load) (Relay outputs)</p> <p>Control output 1</p> <p>DO NOT USE</p> <p>DO NOT USE</p> <p>mA</p> <p>Volt</p> <p>DO NOT USE</p> <p>A</p> <p>B</p> <p>B</p> <p>①</p> <p>②</p> <p>③</p> <p>④</p> <p>⑤</p> <p>⑥</p> <p>⑦</p> <p>⑧</p> <p>⑨</p> <p>⑩</p> <p>⑪</p> <p>Input power supply</p> <ul style="list-style-type: none"> <li>• 100 to 240 VAC</li> <li>• 24 VAC/VDC (no polarity)</li> </ul> <p>mA Analog input</p> <p>Volt Temperature input</p> <p>T/c Temperature input</p> <p>Pt Temperature input</p>

### Dimensions

Product discontinuation Model E5CN-U series	Recommended replacement Model E5CC-U series
<p><b>Socket mount terminal block</b></p>  <p>48 × 48</p> <p>(84.7)</p> <p>14.2</p> <p>70.5</p> <p>6</p> <p>58</p> <p>44.8 × 44.8</p> <p>Mounting Adapter (Accessory)</p> <p><b>Sockets</b> Front-connecting socket: P2CF-11 Front-connecting socket with finger Protection: P2CF-11-E Back connecting socket: P3GA-11 Terminal cover for back-connecting socket: Y92A-48G</p>	<p><b>Socket mount terminal blocks</b></p>  <p>48 × 48</p> <p>76.8</p> <p>14.2</p> <p>58.6</p> <p>4</p> <p>58</p> <p>Mounting Adapter (Accessory)</p> <p><b>Sockets – Same as E5CN-U</b> Front-connecting socket: P2CF-11 Front-connecting socket with finger Protection: P2CF-11-E Back connecting socket: P3GA-11 Terminal cover for back-connecting socket: Y92A-48G</p>

## Ratings and Characteristics

Item	Product discontinuation Model E5CN-U series	Recommended replacement Model E5CC-U series
<b>Power supply voltage</b>	No D in model number: 100 to 240 VAC, 50/60 Hz D in model number: 24 VAC, 50/60 Hz; 24 VDC	A in model number: 100 to 240 VAC, 50/60 Hz D in model number: 24 VAC, 50/60 Hz; 24 VDC
<b>Operating voltage range</b>	85% to 110% of rated supply voltage	85% to 110% of rated supply voltage
<b>Power consumption</b>	100 to 240 VAC: 6 VA (max.) 24 VAC/VDC: 3 VA/2 W (max.) (models with current output: 4 VA/2 W)	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
<b>Sensor input</b>	Models with temperature inputs Thermocouple: Types 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 Voltage input: 0 to 50 mV Models with analog inputs 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	Temperature input Thermocouple: Types 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 models manufactured in May 2014 or later.)
<b>Input impedance</b>	Current input: 150 Ω max. Voltage input: 1 MΩ min. (Use a 1:1 connection when connecting the ES2-HB.)	Current input: 150 Ω max. Voltage input: 1 MΩ min. (Use a 1:1 connection when connecting the ES2-HB/THB.)
<b>Control method</b>	ON/OFF control or 2-PID control (with auto-tuning)	ON/OFF control or 2-PID control (with auto-tuning)
<b>Control outputs</b>	Relay output: SPDT, 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 ±15% (PNP), Max. load current: 21 mA, with short-circuit protection circuit	Relay output: SPDT, 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
<b>Auxiliary outputs</b>	Number of outputs: 1 or 2 max. (Depends on the model.) Output specifications: Relay output: SPST-NO, 3 A at 250 VAC, (resistive load), electrical life: 100,000 operations Minimum applicable load: 10 mA at 5 V	Number of outputs 1 or 2 (Depends on the model.) Output specifications: Relay outputs: SPST-NO, 3 A at 250 VAC (resistive load)





**Ratings and Characteristics (continued)**

<b>Item</b>	<b>Product discontinuation Model E5CN-U series</b>	<b>Recommended replacement Model E5CC-U series</b>
<b>Event inputs</b>	Number of inputs 2 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 External power supply for ES1B: 12 VDC ±10%, 20 mA, short-circuit protection circuit provided	Number of inputs: 2 or 4 (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
<b>Transfer output</b>	--	Number of outputs: 1 (only on models with a transfer output) Output specifications: Current output: 4 to 20 mA DC, load: 500 Ω max., resolution: approx. 10,000 Linear voltage output: 1 to 5 VDC, load: 1 kΩ min., resolution: Approx. 10,000
<b>Setting method</b>	Digital setting using front panel keys	Digital setting using front panel keys
<b>Remote SP input</b>	--	Current input: 4 to 20 mA DC or 0 to 20 mA DC (input impedance: 150 Ω max.) Voltage input: 1 to 5 V, 0 to 5 V, or 0 to 10 V (input impedance: 1 MΩ min.)
<b>Indication method</b>	11-segment digital display and individual indicators (7-segment display also possible) Character height: PV: 11 mm, SV: 6.5 mm	11-segment digital display and individual indicators Character height: PV: 15.2 mm, SV: 7.1 mm
<b>Multiple Set Points (SP)</b>	Up to four set points (SP0 to SP3) can be saved and selected using event inputs, key operations, or serial communications.	Up to eight set points (SP0 to SP7) can be saved and selected using event inputs, key operations, or serial communications.
<b>Other functions</b>	Manual output, Heating/cooling control, Loop burnout alarm, SP ramp, Other alarm functions, Heater burnout detection (including SSR failure and heater overcurrent detection), 40% AT, 100% AT, self-tuning, MV limiter, Input digital filter, Temperature input shift, Run/stop, Protection functions, Control output ON/OFF counter, Extraction of square root, MV change rate limit, Logic operations, PV/SV status display, Simple program, Automatic cooling coefficient adjustment	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, self-tuning, robust tuning, MV limiter, Input digital filter, 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
<b>Ambient operating temperature</b>	-10 to 55°C (with no condensation or icing), for 3-year warranty: -10 to 50°C	-10 to 55°C (with no condensation or icing)

## Ratings and Characteristics (continued)

Item	Product discontinuation Model E5CN-U series	Recommended replacement Model E5CC-U series
Storage temperature	-25 to 65°C (with no condensation or icing)	-25 to 65°C (with no condensation or icing)
Altitude	--	2,000 m max.
Recommended fuse	--	T2A, 250 VAC, time-lag, low-breaking capacity
Installation environment	--	Installation Category II, Pollution Degree 2 (IEC 61010-1 compliant)

## Operation Method

	E5CN	E5CC	Changes/Notices when replacing
Display	Red LED 	White LED 	Changed the display color and enlarged the character size. e.g.,) Character heights (PV) 11.0mm to 15.2mm
Operation key	4KEY Emboss (sheet) switches  Level key Mode key Down key Up key	5KEY Push button (resin) switches  Level key Mode key Down key Up key	<ul style="list-style-type: none"> <li>Layout change, add functions</li> <li>Digit shift key function is assigned to PF (shift) key as default.</li> <li>Conventional shift key function could change one digit only when setting SP. With this function, a user can set SP by digit, which enhances the efficiency.</li> </ul>

## Reference Documentation

Description	Media	Publication number
E5CN-U data sheet	PDF	<a href="#">H160-E1-01A</a>
E5CN-U data sheet en español	PDF	<a href="#">H126-ES1-01A</a>
E5CC-U data sheet	PDF	<a href="#">H04I-E-01</a>
E5CN-U to E5CC-U Migration Presentation	PPT	<a href="#">PRES-E5CN-U-MIGRATION</a>

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