E5_C-T Programmable Temperature Controller (Digital Controller)

Easy-to-read, simple and dependable Program control

» Set Up to 8 Programs with 32 Segments Each.

» High-contrast display

» Easy set-up and operation with a Special Software
Highly Visible White PV (Process Value) Display and Three-level-Display

Easier Confirmation

Easy-to-read White Characters with Largest Display Size in the Industry

White characters on a black background combine with the largest display size in the industry to achieve superior visibility.
You can quickly and reliably check the PV from wide viewing angles, with natural light or in the subdued lighting conditions.

Life Size

Three-level Display that is easy to understand.

You can display the PV (white) and the SV (green) along with the program progression (PRG and SEG (yellow)). These are all visible simultaneously so that you don’t have to switch the display.

Three-level Display that is easy to understand.

The program and segment numbers are displayed to show program progression.

E5AC-T (shown on the left): 25 mm
E5EC-T: 18 mm
E5CC-T: 15.2 mm

Life Size

Three-level Display that is easy to understand.

The program and segment numbers are displayed to show program progression.
Special Setup Software for Easy Setup

Commission Machines Even Faster

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.

Up to 8 Programs with 32 Segments Each

A Wide Range of Applications

For complex temperature control, you can set up to 32 segments in each program, for a total of 256 program segments.

Dependable Basic Performance

- High-speed sampling period at 50 ms
- Control period of 0.1 s or 0.2 s.
- Universal input on all models
- Programless communications
- Number of event inputs
  - E5CC-T: 4 max.
  - E5EC-T/E5AC-T: 6 max.
- Number of auxiliary outputs
  - E5CC-T: 3
  - E5EC-T/E5AC-T: 4
Easier Operation at Worksite

Parameter Mask Function

Prevent Incorrect Settings and Operating Mistakes

You can hide the parameters that do not need to be displayed depending on the worksite. You can easily make the settings from a computer with the CX-Thermo Special Setup Software. Unnecessary parameters are not displayed at worksite, which prevents operating mistakes by workers.

Shift Key

Reduce Setting work 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, where many parameter settings are required for program control.

* You can make settings from a computer or directly enter them into the Controller.
Applications

Sterilization Equipment for Food and Pharmaceuticals

During Machine Adjustment
(All Parameters Displayed)

During Machine Operation
(Only Required Parameters Are Displayed)

Easier Operation at Worksite
Parameter Mask Function
Prevent Incorrect Settings and Operating Mistakes

For example, to set one.lf/zero.lf/zero.lf°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, where many parameter settings are required for program control.

Shift Key
Reduce Setting work to Enter Values

PV/SP
RUN/STOP
Alarm Value 1
Alarm Value 2
Alarm Value 1

Proportional Band
Integral Time
Derivative Time

AT Execute/Cancel
Temperature
Input Shift

Items to manipulate
Items to mask

Just press the shift key to move the digit.

One E5AC-T Controller
A wide variety of control is possible with the six event inputs and four auxiliary outputs.

Device Configuration
One E5AC-T Controller

Device Configuration
One E5EC-T Controller
Two E5EC Controllers

You can easily achieve zone (area) control with component communications. RUN/RESET status of master TC and slave TC link to achieve consistent furnace temperatures in order to improve productivity and reduce lead time.

Device Configuration
One E5EC-T Controller

Device Configuration
One E5CC-T Controller

You can use automatic PID set selection function to easily handle a controlled object, whose characteristics vary in each temperature zone.

Applications

Sterilization Equipment for Food and Pharmaceuticals

Electric Furnace

Laboratory Instruments and Desktop Testing Apparatus
Model Number Legend and Standard Models

Model Number Legend

● Models with Screw Terminals
E5CC-T [●] 3 [●] 5M [●] [●] (Example: E5CC-TRX3A5M-000)

Optional Products (Order Separately)

USB-Serial Conversion Cable

<table>
<thead>
<tr>
<th>Model</th>
<th>Control outputs 1 and 2</th>
<th>No. of auxiliary outputs</th>
<th>Power supply voltage</th>
<th>Terminal type</th>
<th>Input type</th>
<th>Options</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>E5CC-T</td>
<td>[●]</td>
<td>[●]</td>
<td>[●]</td>
<td>[●]</td>
<td>[●]</td>
<td>[●]</td>
<td>48 x 48 mm Programmable Type</td>
</tr>
<tr>
<td>RX</td>
<td>[●]</td>
<td>[●]</td>
<td>[●]</td>
<td>[●]</td>
<td>[●]</td>
<td>[●]</td>
<td>Control output 1</td>
</tr>
<tr>
<td>QX</td>
<td>[●]</td>
<td>[●]</td>
<td>[●]</td>
<td>[●]</td>
<td>[●]</td>
<td>[●]</td>
<td>Control output 2</td>
</tr>
<tr>
<td>CX</td>
<td>[●]</td>
<td>[●]</td>
<td>[●]</td>
<td>[●]</td>
<td>[●]</td>
<td>[●]</td>
<td>None</td>
</tr>
<tr>
<td>QQ</td>
<td>[●]</td>
<td>[●]</td>
<td>[●]</td>
<td>[●]</td>
<td>[●]</td>
<td>[●]</td>
<td>Voltage output (for driving SSR)</td>
</tr>
<tr>
<td>CQ</td>
<td>[●]</td>
<td>[●]</td>
<td>[●]</td>
<td>[●]</td>
<td>[●]</td>
<td>[●]</td>
<td>Voltage output (for driving SSR)</td>
</tr>
</tbody>
</table>

Control output 1
- Relay output
- Voltage output (for driving SSR)
- Linear current output *2
- Voltage output (for driving SSR)
- Linear current output *2

Control output 2
- None
- None
- None
- None
- Voltage output (for driving SSR)

<table>
<thead>
<tr>
<th>No.</th>
<th>Control output 1</th>
<th>Control output 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>000</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>001</td>
<td>1</td>
<td>—</td>
</tr>
<tr>
<td>003</td>
<td>2 (for 3-phase heaters)</td>
<td>RS-485</td>
</tr>
<tr>
<td>004</td>
<td>—</td>
<td>RS-485</td>
</tr>
<tr>
<td>005</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>006</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

*1. Options with HB and HS alarms (001, and 003) cannot be selected if a linear current output 1 is selected for the control output.
*2. The Linear current output cannot be used as a transfer output.
*3. Option 004 can be selected only when “CX” is selected for the control outputs.

Optional Products (Order Separately)

USB-Serial Conversion Cable

Model
E58-CIFQ2

CX-Thermo Support Software

Model
EST2-2C-MV4

Note: CX-Thermo version 4.61 or higher is required for the E5CC-T.
For the system requirements for the CX-Thermo, refer to information on the EST2-2C-MV4 on the OMRON website (www.ia.omron.com).
## Model Number Legend and Standard Models

### Model Number Legend

- ● Models with Screw Terminals

### Models with Screw Terminals

#### Example: E5EC-TRX4A5M-000

- **Model Number Legend**
  - E5EC-T 4 5M- (Example: E5EC-TRX4A5M-000)
  - E5AC-T 4 5M- (Example: E5AC-TRX4A5M-000)

#### Optional Products (Order Separately)

- **USB-Serial Conversion Cable**
  - Model: E58-CIFQ2

- **Communications Conversion Cable**
  - Model: E58-CIFQ2-E

### Table

<table>
<thead>
<tr>
<th>Model</th>
<th>Control outputs 1 and 2</th>
<th>No. of auxiliary outputs</th>
<th>Power supply voltage</th>
<th>Terminal type</th>
<th>Input type</th>
<th>Options</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>E5EC-T</td>
<td>48 x 96 mm Programmable Type</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E5AC-T</td>
<td>96 x 96 mm Programmable Type</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Control outputs 1 and 2**
  - RX: Relay output
  - QX: Voltage output (for driving SSR)
  - CX: Linear current output
  - QQ: Voltage output (for driving SSR)
  - QQ: Voltage output (for driving SSR)
  - QR: Relay output
  - RR: Relay output
  - CC: Linear current output
  - CQ: Voltage output (for driving SSR)
  - PR: Position-proportional relay output

- **No. of auxiliary outputs**
  - 4: 4 (auxiliary outputs 1 and 2 with same common and auxiliary outputs 3 and 4 with same common)

- **Power supply voltage**
  - A: 100 to 240 VAC
  - D: 24 VAC/DC

- **Terminal type**
  - M: Universal input

- **Input type**
  - Options

- **Options**
  - HB alarm and HS alarm
  - Communications
  - Event inputs
  - Transfer output

- **Transfer output**
  - Option selection conditions:
    - Selectable: Selectable
    - Selectable: Selectable
    - Selectable: Selectable
    - Selectable: Selectable
    - Selectable: Selectable
    - Selectable: Selectable

### Note:

- For RX, QX, QQ, QR, RR, CC, or CQ:
  - For PR:
    - Selectable
    - Selectable
    - Selectable
    - Selectable

### Optional Products (Order Separately)

#### USB-Serial Conversion Cable

- **Model**: E58-CIFQ2

#### Communications Conversion Cable

- **Model**: E58-CIFQ2-E

### Note:

- Always use this product together with the E58-CIFQ2. This Cable is used to connect to the front-panel Setup Tool port.

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### CX-Thermo Support Software

- **Model**: EST2-2C-MV4

Note: CX-Thermo version 4.61 or higher is required for the E5EC-T/E5AC-T. For the system requirements for the CX-Thermo, refer to information on the EST2-2C-MV4 on the OMRON website (www.ia.omron.com).
Main Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>E5CC-T</th>
<th>E5EC-T</th>
<th>E5AC-T</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size (mm)</td>
<td>Front panel: 48 x 48, Depth: 60</td>
<td>Front panel: 48 x 96, Depth: 60</td>
<td>Front panel: 96 x 96, Depth: 60</td>
</tr>
</tbody>
</table>

Sensor input

Indication accuracy (at the ambient temperature of 23°C)
- 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
- Analog input: ±0.2% FS ±1 digit max.
- CT input: ±5% FS ±1 digit max.

Input sampling period
50 ms

Control output
- Relay output, Voltage output (for driving SSR), Linear current output (depends on model)
- Position-proportional relay output (depends on model)

Event input
- You can assign one of the following: Program switching, switching between run and reset status, switching between automatic and manual operation, invert direct/reverse operation, switching between program SP mode and fixed SP mode, 100% AT execute/cancel, 40% AT execute/cancel, 100% execute/cancel for all PID sets, 40% execute/cancel for all PID sets, setting change enable/disable, communications write enable/disable, alarm latch cancel, hold/clear hold, advance, and wait enable/disable.

Auxiliary output
- You can assign one of the following: control output, alarm, HB alarm, HS alarm, input error (S.ERR), integrated alarm, RUN status, program end, stages, time signals, or work bit.

Transfer output
- 1 (only on models with a transfer output)
- You can assign one of the following: SP, Set point during SP ramp SP, PV, MV, or valve opening.

Terminal size
- M3

Approved standards

Program Control

<table>
<thead>
<tr>
<th>Program Control</th>
<th>Number of programs (patterns)</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of segments (steps)</td>
<td>32</td>
<td></td>
</tr>
<tr>
<td>Segment setting method</td>
<td>Time setting (Segment set with set point and time.)</td>
<td></td>
</tr>
<tr>
<td>Segment times</td>
<td>0 h 0 min to 99 h 59 min</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0 min 0 s to 99 min 59 s</td>
<td></td>
</tr>
<tr>
<td>Alarm setting</td>
<td>Set separately for each program.</td>
<td></td>
</tr>
<tr>
<td>Reset operation</td>
<td>Select either stopping control or fixed SP operation.</td>
<td></td>
</tr>
<tr>
<td>Startup operation</td>
<td>Select continuing, resetting, manual operation, or run mode.</td>
<td></td>
</tr>
<tr>
<td>PID sets</td>
<td>Number of sets: 8</td>
<td></td>
</tr>
<tr>
<td>Setting method</td>
<td>Set separately for each program (automatic PID group selection also supported).</td>
<td></td>
</tr>
<tr>
<td>Alarm SP function</td>
<td>Select from ramp SP and target SP.</td>
<td></td>
</tr>
<tr>
<td>Program status control</td>
<td>Segment operation: Advance, segment jump, hold, and wait</td>
<td></td>
</tr>
<tr>
<td>Program operation</td>
<td>Program repetitions and program links</td>
<td></td>
</tr>
<tr>
<td>Wait operation</td>
<td>Wait method: Waiting at segment ends</td>
<td></td>
</tr>
<tr>
<td>Wait width setting</td>
<td>Same wait width setting for all programs</td>
<td></td>
</tr>
<tr>
<td>Time signals</td>
<td>Number of outputs: 2</td>
<td></td>
</tr>
<tr>
<td>Number of ON/OFF operations</td>
<td>1 each per program</td>
<td></td>
</tr>
<tr>
<td>Setting method</td>
<td>Set separately for each program.</td>
<td></td>
</tr>
<tr>
<td>Program status output</td>
<td>Program end output (pulse width can be set), run output, stage output</td>
<td></td>
</tr>
<tr>
<td>Program startup operation</td>
<td>PV start: Select from segment 1 set point, slope-priority PV start</td>
<td></td>
</tr>
<tr>
<td>Standby</td>
<td>0 h 0 min to 99 h 59 min</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0 day 0 h to 99 day 23h</td>
<td></td>
</tr>
<tr>
<td>Operation end operation</td>
<td>Select from resetting, continuing control at final set point, and fixed SP control.</td>
<td></td>
</tr>
<tr>
<td>Program SP shift</td>
<td>Same program SP shift for all programs</td>
<td></td>
</tr>
</tbody>
</table>

Refer to the E5:C:E5:C:T Digital Temperature Controllers Datasheet (Cat. No. H177) for details.

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