Programmable Digital Controller
E5AR-T/E5ER-T

One Digital Controller with Up To 32 Programs
A new High-speed, High-precision Digital Controller that is Programmable!

This Digital Controller boasts a sampling time of 50 ms, plus a resolution of 0.01°C for a Pt input.
And you can create up to 32 programs containing up to 256 segments total.
This type of performance makes a big difference in many applications, such as test equipment where many different settings must be tried.

- Create up to 32 programs with up to 256 segments total.
- Coordinated operation for up to four channels with one Digital Controller.
- 0.01°C; High resolution for Pt input.
- High-speed sampling at 50 ms.

Programmable Digital Controller
E5AR-T/E5ER-T
**Features**

Create Up To 32 Programs with Up To 256 Segments Total

You can create up to 32 programs with up to 8 segments each, or you can create up to 8 programs with up to 32 segments each. Either way, you get up to a total of 256 segments of programming. This feature is ideal for testing equipment to make a variety of settings.

High-speed and High-resolution Performance

Sample at the high speed of 50 ms for 4 channels to achieve stable control even for items requiring high-speed response. And, the resolution is 0.01 °C for a Pt input. Temperature, humidity, and other factors for ambient testing equipment can be measured, variations detected, and data logged at a high resolution.

- Stable control for items requiring high-speed response.

Coordinated Operation for Up to Four Channels with One Digital Controller

Up to four channels are supported for analog control in a compact sized body to contribute to downsizing control panels.

Easy Settings from a Computer Using the CX-Thermo

The CX-Thermo setting software lets you set, edit, and transfer parameters all at once.

RoHS Compliance for World-wide Application

Available Soon

It will soon be possible to easily setup and monitor screens online using the SAP Library.

**Ordering**

<table>
<thead>
<tr>
<th>Size</th>
<th>Control type</th>
</tr>
</thead>
<tbody>
<tr>
<td>96 x 96 mm</td>
<td>Basic control (1 loop)</td>
</tr>
<tr>
<td>96 x 96 mm</td>
<td>2-loop control</td>
</tr>
<tr>
<td>48 x 96 mm</td>
<td>4-loop control</td>
</tr>
<tr>
<td></td>
<td>Control var control (1 loop)</td>
</tr>
</tbody>
</table>

Note 1. Specify the product model name.
- Models may vary.
- The outputs and power supply may differ.
- Only for coordination with a master.

Note: Coordinated operation refers to a slave operating using the same program as the master.

- The application example shown is for a digital controller.
- Never use the products for amusement machines, or for situations involving the risks, and that the OM...
## Applications

### Semiconductor Test Equipment

**Topic** High-speed, high-precision programmed control  

**Solution** Achieve optimum semiconductor temperature profiles with high-speed response and high precision.

![Infrared sensor](image)

- High Precision  
- Fast Response  
- Programmed Control

### Furnace Test Equipment

**Topic** High-speed heating and cooling control  

**Solution** Use high-speed sampling to achieve repeated control for temperature increases and decreases of hundreds of degrees in a few second.

![Furnace test equipment](image)

- 4 Channels  
- Coordinated Operation  
- Fast Response  
- Programmed Control

### Bonding Equipment

**Topic** Expensive, multifunctional controllers had to be used for devices requiring high-speed response, such as ceramic heaters, because economic temperature controllers were not available.

**Solution**  
- Improved control performance with high-speed sampling (50 ms)  
- Economic and easy to operate

![Bonding equipment](image)

- Fast Response  
- Programmed Control
such as test equipment where many different settings must be tried. This type of performance makes a big difference in many applications, and you can create up to 32 programs containing up to 256 segments total.

High-speed sampling at 50 ms, plus a resolution of 0.01 °C for Pt input.

This Digital Controller boasts a sampling time of 50 ms, plus a resolution of 0.01 °C for Pt input.

Coordinated operation for up to four channels.

Control

Number of programs (patterns) 32 (with 8 segments/program)
Number of segments (steps) 32 (with 8 programs)
Maximum number of segments 256
Segment setting method Time setting (Segment set with target value and time.)
Segment times 0 h 0 min to 99 h 59 min
0 min 0 s to 99 min 59 s
0 min 00.0 s to 99 min 59.9 s
Alarm group number specifications
Setting method Set separately for each program.
Reset operation Select either stopping control or fixed SP operation.
Startup operation Select continuing, resetting, manual operation, run mode, or ramp back operation.
PID groups Number of groups 8
Setting method Set separately for each program (automatic PID group selection also supported).
Alarm SP function Select from ramp SP and target SP.
Program status control Segment operation Advance, hold, and back
Program operation Program repetitions and program links
Wait operation Wait method Select from waiting at segment ends and always waiting.
Wait width setting Wait width upper limit and lower limit set separately for each program.
Setting method ON/OFF setting for each segment
Time signals Number of outputs 6
Number of D/OFF operations 3 each per output
Segment outputs Number of outputs 10
Setting method ON/OFF set for each segment.
Program status output Program end output (pulse width can be set)
Segment number output
Program startup operation PV start Select from segment 1 target value, slope-priority PV start, and time-priority PV start.
Standby Standby
Operation end operation Select from resetting, continuing control at final target value, and fixed SP control.
Number of event inputs 10 max.
## Ordering Information

<table>
<thead>
<tr>
<th>Size</th>
<th>Control type</th>
<th>Control mode</th>
<th>Outputs (control/transfer)</th>
<th>Optional functions</th>
<th>Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>96 x 96 mm</td>
<td>Basic control</td>
<td>Standard control</td>
<td>2 (pulse + pulse/current)</td>
<td>4</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Heating and cooling control</td>
<td>2 (current + current)</td>
<td>2</td>
<td>E5AR-TQ4B</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2 (pulse + pulse/current)</td>
<td></td>
<td>E5AR-TC4B</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2 (current + current)</td>
<td></td>
<td>E5AR-TQ43B-FLK+</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2 (current + current)</td>
<td></td>
<td>E5AR-TC43B-FLK+</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4 (pulse + pulse/current + 2 current)</td>
<td>10</td>
<td>None</td>
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<tr>
<td></td>
<td>2-loop control</td>
<td>Single-loop control</td>
<td>2 (pulse + pulse/current)</td>
<td>4</td>
<td>RS-485</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Single-loop cascade control</td>
<td>2 (current + current)</td>
<td>4</td>
<td>E5AR-TQ43DW-FLK+</td>
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<tr>
<td></td>
<td></td>
<td>Single-loop control with remote SP</td>
<td>4 (2 pulse + 2 pulse/2 current)</td>
<td>10</td>
<td>RS-485</td>
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<td>E5AR-TQ43DW-FLK+</td>
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<td></td>
<td>4-loop control</td>
<td>2-loop standard control</td>
<td>2 (current + current)</td>
<td>4</td>
<td>RS-485</td>
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<tr>
<td></td>
<td></td>
<td>2-loop heading control</td>
<td>2 (current + current)</td>
<td>4</td>
<td>E5AR-TQ43DW-FLK+</td>
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<td></td>
<td>Control valve</td>
<td>Single-loop position-propotional control</td>
<td>Relay outputs (1 open, 1 closed)</td>
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<tr>
<td></td>
<td>control (1 loop)</td>
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<td>2 (pulse + pulse/2 current)</td>
<td>4</td>
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<td>10 (at rate 2)</td>
<td>8</td>
<td>E5AR-TPR43MF-FLK</td>
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<tr>
<td>48 x 96 mm</td>
<td>Basic control</td>
<td>Standard control</td>
<td>2 (pulse + pulse/current)</td>
<td>4</td>
<td>None</td>
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<tr>
<td></td>
<td></td>
<td>Heating and cooling control</td>
<td>2 (current + current)</td>
<td>2</td>
<td>E5AR-TQ4B</td>
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<td>2 (pulse + pulse/current)</td>
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<td>Single-loop control</td>
<td>2 (pulse + pulse/current)</td>
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<td>Single-loop control with remote SP</td>
<td>4 (4 current)</td>
<td>4</td>
<td>RS-485</td>
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<td>Single-loop proportional control</td>
<td>4 (2 current + 2 pulse/2 current)</td>
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</table>

**Note 1.** Specify the power supply specifications when ordering. Model numbers for 100 to 240 VAC are different from those for 24 VAC/VDC.

**Models marked with asterisks are available only for 100 to 240 VAC.**

**2. The outputs are transistor outputs.**

**3. Only for coordinated operation. (A different program cannot be set for each channel.)**

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**Note:** Do not use this document to operate the Unit.