

E5ER Digital Controllers offer high speed, high precision, and multiple I/O and use a 5-digit, 3-row LCD display for high visual clarity.

- A short sampling period of 50 ms enables use in applications requiring high-speed response.
- PV, SP, and MV data is displayed simultaneously in a 3-row, negative LCD display with a backlight.
- Multipoint control, cascade control, and proportional control are possible with a single Controller.
- When using models with CompoWay/F communications, initial settings can be downloaded and settings can be masked using Support Software (CX-Thermo version 4.0 or higher).
- Equipped with calculation functions as a standard (e.g., square root calculation and broken-line approximation).
- DeviceNet Communications
Data setting and monitoring can be performed without any special programming.



For the most recent information on models that have been certified for safety standards, refer to your OMRON website.



Refer to *Safety Precautions for All E5□R Models*.

Refer to *E5AR/E5ER Operation* for operating procedures.

Model Number Structure

Model Number Legend

E5ER-□□□□□□□□□□-□□□□
1 2 3 4 5 6 7 8 9 10

1. Constant values/Program

None: Constant values

2. Control method

Blank: Standard, or heating/cooling control

P: Position-proportional control

3. Output 1

R: DPST-NO relay outputs

Q: Pulse voltage and pulse voltage/current outputs

C: Current and current outputs

4. Output 2

Blank: None

R: Relay

Q: Pulse voltage and pulse voltage/current outputs

C: Current and current outputs

5. Auxiliary outputs

Blank: None

4: 4PST-NO relay outputs

T: 2 transistor outputs

6. Optional function 1

Blank: None

3: RS-485 communications

7. Optional function 2

Blank: None

D: 4 event inputs

8. Input 1

B: Universal-input and 2 event inputs

F: Universal-input and FB

W: Universal-input and universal-input

9. Input 2

Blank: None

W: Universal-input and universal-input

10. Communications Method

Blank: None

FLK: CompoWay/F

DRT: DeviceNet

Note: The above model number legend is intended as a functional description of models. Not all possible combinations of functions are available. Confirm model availability in *Ordering Information* when ordering.

The CX-Thermo Support Software (version 4.0 or higher) can be used to easily set parameters in conversational form.

Note: Be sure to read the precautions for correct use and other precautions in the following user's manual before using the Digital Controller.

E5AR/E5ER Digital Controller User's Manual (Cat. No. Z182)

E5AR/E5ER Digital Controller DeviceNet Communication User's Manual (Cat. No. H124)

Ordering Information

■ Digital Controllers

When your order, specify the power supply voltage.

Standard Controllers (100 to 240 VAC)

Size	Control type	Control mode	Outputs (control/transfer)	Optional functions			Model
				Auxiliary outputs (SUB)	Event inputs	Serial communications	
48 × 96 mm	Basic control (1 loop)	Single-loop standard control Single-loop heating and cooling control	2 points: Pulse voltage and Pulse voltage/current	4	2	No	E5ER-Q4B
			2 points: Current and Current				E5ER-C4B
			2 points: Pulse voltage and Pulse voltage/current				E5ER-Q43B-FLK
			2 points: Current and Current				E5ER-C43B-FLK
			2 points: Pulse voltage and Pulse voltage/current	2 (See note 1.)	6	RS-485	E5ER-QT3DB-FLK
			2 points: Current and Current				E5ER-CT3DB-FLK
			4 points: Pulse voltage and Pulse voltage/current and Current (2 points)	4	2		E5ER-QC43B-FLK
	2-loop control	2-loop standard control Single-loop heating and cooling control Single-loop cascade control Single-loop control with remote SP Single-loop proportional control	2 points: Pulse voltage and Pulse voltage/current	2 (See note 1.)	4	RS-485	E5ER-QT3DW-FLK
			2 points: Current and Current				E5ER-CT3DW-FLK
	Position-proportional control (1 loop)	Single-loop position-proportional control (See note 2.)	Relay output (1 open, 1 closed)	2 (See note 1.)	4	No	E5ER-PRTDF
			Relay output (1 open, 1 closed) and 1 current (transfer) output	4	No	RS-485	E5ER-PRQ43F-FLK

Note 1: The auxiliary outputs are transistor outputs.

2: Can be switched between close control and floating control.

Standard Controllers (24 VAC/DC)

Size	Control type	Control mode	Outputs (control/transfer)	Optional functions			Model
				Auxiliary outputs (SUB)	Event inputs	Serial communications	
48 × 96 mm	Basic control (1 loop)	Single-loop standard control Single-loop heating and cooling control	2 points: Pulse voltage and Pulse voltage/current	4	2	No	E5ER-Q4B
			2 points: Current and Current				E5ER-C4B
			4 points: Pulse voltage and Pulse voltage/current and Current (2 points)	4	2	RS-485	E5ER-QC43B-FLK
	2-loop control	2-loop standard control Single-loop heating and cooling control Single-loop cascade control Single-loop control with remote SP Single-loop proportional control	2 points: Pulse voltage and Pulse voltage/current	2 (See note 1.)	4	RS-485	E5ER-QT3DW-FLK
			2 points: Current and Current				E5ER-CT3DW-FLK
	Position-proportional control (1 loop)	Single-loop position-proportional control (See note 2.)	Relay output (1 open, 1 closed)	2 (See note 1.)	4	No	E5ER-PRTDF
			Relay output (1 open, 1 closed) and 1 current (transfer) output	4	No	RS-485	E5ER-PRQ43F-FLK

Note 1: The auxiliary outputs are transistor outputs.

2: Can be switched between close control and floating control.

DeviceNet-compatible Controllers (100 to 240 VAC)

Size	Control type	Control mode	Outputs (control/transfer)	Optional functions			Model
				Auxiliary outputs (SUB)	Event inputs	DeviceNet communications	
48 × 96 mm	Basic control (1 loop)	Single-loop standard control Single-loop heating and cooling control	2 points: Pulse voltage Pulse voltage/current	2 (See note 1.)	2	Yes	E5ER-QTB-DRT
			2 points: Current and Current				E5ER-CTB-DRT
	2-loop control	2-loop standard control Single-loop heating and cooling control Single-loop cascade control Single-loop standard control with remote SP Single-loop proportional control	2 points: Pulse voltage Pulse voltage/current	2 (See note 1.)	None	Yes	E5ER-QTW-DRT
			2 points: Current and Current				E5ER-CTW-DRT
	Position-proportional control (1 loop)	Single-loop position-proportional control (See note 2.)	Relay output (1 open, 1 closed)	2 (See note 1.)	None	Yes	E5ER-PRTF-DRT

Note: 1. The auxiliary outputs are transistor outputs.
2. Can be switched between close control and floating control.

DeviceNet-compatible Controllers (24 VAC/DC)

Size	Control type	Control mode	Outputs (control/transfer)	Optional functions			Model
				Auxiliary outputs (SUB)	Event inputs	DeviceNet communications	
48 × 96 mm	Basic control (1 loop)	Single-loop standard control Single-loop heating and cooling control	2 points: Pulse voltage Pulse voltage/current	2 (See note 1.)	2	Yes	E5ER-QTB-DRT
			2 points: Current and Current				E5ER-CTB-DRT
	2-loop control	2-loop standard control Single-loop heating and cooling control Single-loop cascade control Single-loop standard control with remote SP Single-loop proportional control	2 points: Pulse voltage Pulse voltage/current	2 (See note 1.)	None	Yes	E5ER-QTW-DRT
			2 points: Current and Current				E5ER-CTW-DRT
	Position-proportional control (1 loop)	Single-loop position-proportional control (See note 2.)	Relay output (1 open, 1 closed)	2 (See note 1.)	None	Yes	E5ER-PRTF-DRT

Note: 1. The auxiliary outputs are transistor outputs.
2. Can be switched between close control and floating control.

Inspection Results

The Inspection Report can be ordered at the same time as the Digital Controller using the following model number.

Inspection Report (Sold Separately)

Descriptions	Model
Inspection Report for E5ER	E5ER-K

Accessories (Order Separately)

Terminal Cover (Sold Separately)

Descriptions	Model
Terminal Cover for E5ER	E53-COV15

Rubber Packing

Model
Y92S-P5

Note: The Rubber Packing is provided with the Digital Controller.

Specifications

■ Ratings

Item		Supply voltage (See note 1.)	100 to 240 VAC, 50/60 Hz	24 VAC, 50/60 Hz; 24 VDC
Operating voltage range			85% to 110% of rated supply voltage	
Power consumption			17 VA max. (with maximum load)	11 VA/7 W max. (with maximum load)
Sensor input (See note 2.)			Thermocouple: K, J, T, E, L, U, N, R, S, B, W Platinum resistance thermometer: Pt100 Current input: 4 to 20 mA DC, 0 to 20 mA DC (including remote SP input) Voltage input: 1 to 5 VDC, 0 to 5 VDC, 0 to 10 VDC (including remote SP input) (Input impedance: 150 Ω for current input, approx. 1 MΩ for voltage input)	
Control output	Voltage (pulse) output		12 VDC, 40 mA max. with short-circuit protection circuit	
	Current output		0 to 20 mA DC, 4 to 20 mA DC; load: 500 Ω max. (including transfer output) (Resolution: Approx. 54,000 for 0 to 20 mA DC; Approx. 43,000 for 4 to 20 mA DC)	
	Relay output		Position-proportional control type (open, closed) N.O., 250 VAC, 1 A (including inrush current)	
Auxiliary output			Relay Output N.O., 250 VAC, 1 A (resistive load) Transistor Output Maximum load voltage: 30 VDC; Maximum load current: 50 mA; Residual voltage: 1.5 V max.; Leakage current: 0.4 mA max.	
Potentiometer input			100 Ω to 2.5 kΩ	
Event input	Contact		Input ON: 1 kΩ max.; OFF: 100 kΩ min.	
	No-contact		Input ON: Residual voltage of 1.5 V max.; OFF: Leakage current of 0.1 mA max.	
			Short-circuit: Approx. 4 mA	
Remote SP input			Refer to the information on sensor input.	
Transfer output			Refer to the information on control output.	
Control method			2-PID or ON/OFF control	
Setting method			Digital setting using front panel keys or setting using serial communications	
Indication method			7-segment digital display and single-lighting indicator Character Height PV: 9.5 mm; SV: 7.2 mm; MV: 7.2 mm	
Other functions			Depends on model.	
Ambient operating temperature			-10 to 55°C (with no icing or condensation) For 3 years of assured use: -10 to 50°C (with no icing or condensation)	
Ambient operating humidity			25% to 85%	
Storage temperature			-25 to 65°C (with no icing or condensation)	

- Note 1:** The supply voltage (i.e., 100 to 240 VAC or 24 VAC/VDC) depends on the model. Be sure to specify the required type when ordering.
Note 2: The Controller is equipped with multiple sensor input. Temperature input or analog input can be selected with the input type setting switch. There is basic insulation between power supply and input terminals, power supply and output terminals, and input and output terminals.
Note 3: Do not use an inverter output as the power supply. (Refer to *Safety Precautions for All E5/R Models*.)

■ Input Ranges

Platinum Resistance Thermometer, Thermocouple, Current, or Voltage Input

Input type	Platinum Resistance Thermometer		Thermocouple												Current		Voltage			
Name	Pt100		K		J		T	E	L	U	N	R	S	B	W (W/Re 5-26)	[mA]	[V]			
Temperature Range (°C)	2300														2300.0	20 to 4	20 to 0	5 to 1	5 to 0	10 to 0
	1800																			
	1300																			
	900																			
	800																			
700																				
600																				
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