

Discontinuation Notice of E5EZ-series. (For China area only)

Product Discontinuation

Digital Temperature Controller



Model E5EZ series



Recommended Replacement

Digital Temperature Controller

Model E5EC-8□□ series

[Discontinuation date]

The end of September, 2015

[Caution on recommended replacement]

When replacing models, Sysway Protocol is rendered unavailable.

There is a change in the terminals from M3.5 to M3, and the number of terminals in one array from 10 to 12.

There is no big change in the terminal arrangement.

The temperature sensor with M4 terminals cannot be connected directly to E5EC. You need to attach new crimp terminals.

Draw out function is not provided. If draw out function is needed, please contact your sales representative.

When replacing models, be sure that communications with RS-232C is unavailable.

When using communications with RS-232C, be sure to connect with interface converter K3SC series.

[Difference from discontinued product]

Recommended replacement Model	Body Color	Dimensions	Wire connection	Mounting Dimensions	Characteristics	Operation ratings	Operation methods
Model E5EC-8□□ series	*	--	--	*	--	*	*

** : Compatible

* : The change is a little/Almost compatible

-- : Not compatible

- : No corresponding specification

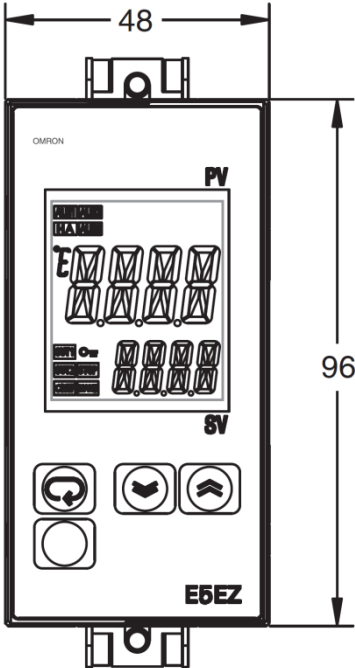
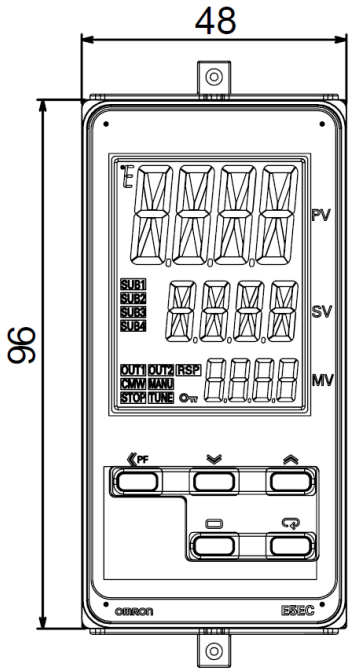
E5EC-8□□ does not support the communication of E5EZ-□□□M□□ with E53-AZ01 (RS-232 function).

[Product Discontinuation and recommended replacement]

Product discontinuation	Recommended replacement
E5EZ-R3HMTD	E5EC-RR2DSM-808
E5EZ-R3HMLD	
Option Units	—
E53-AZ03	E5EC-RR2DSM-808
E53-AZB	
E53-AZ01	E5EC-RR2DSM-808 Use it with the interface convertor model K3SC-10 connected.
E5EZ-R3HMT	E5EC-RR2ASM-808
E5EZ-R3HML	
Option Units	—
E53-AZ03	E5EC-RR2ASM-808
E53-AZB	
E53-AZ01	E5EC-RR2ASM-808 Use it with the interface convertor model K3SC-10 connected.
E5EZ-R3T	E5EC-RR2ASM-800
E5EZ-R3MTD	E5EC-RR2DSM-800
Option Units	—
E53-AZ03	E5EC-RR2DSM-808
E53-AZB	
E53-AZ01	E5EC-RR2DSM-808 Use it with the interface convertor model K3SC-10 connected.
E5EZ-R3MT	E5EC-RR2ASM-800
Option Units	—
E53-AZ03	E5EC-RR2ASM-808
E53-AZB	
E53-AZ01	E5EC-RR2ASM-808 Use it with the interface convertor model K3SC-10 connected.
E5EZ-Q3HMTD	E5EC-QR2DSM-808
E5EZ-Q3HMLD	
Option Units	—
E53-AZ03	E5EC-QR2DSM-808
E53-AZB	
E53-AZ01	E5EC-QR2DSM-808 Use it with the interface convertor model K3SC-10 connected.
E5EZ-Q3HMT	E5EC-QR2ASM-808
E5EZ-Q3HML	
Option Units	—
E53-AZ03	E5EC-QR2ASM-808
E53-AZB	
E53-AZ01	E5EC-QR2ASM-808 Use it with the interface convertor model K3SC-10 connected.
E5EZ-Q3T	E5EC-QR2ASM-800
E5EZ-Q3MTD	E5EC-QR2DSM-800
Option Units	—

Product discontinuation	Recommended replacement
E53-AZ03	E5EC-QR2DSM-808
E53-AZB	
E53-AZ01	E5EC-QR2DSM-808 Use it with the interface convertor model K3SC-10 connected.
E5EZ-Q3MT	E5EC-QR2ASM-800
Option Units	—
E53-AZ03	E5EC-QR2ASM-808
E53-AZB	
E53-AZ01	E5EC-QR2ASM-808 Use it with the interface convertor model K3SC-10 connected.
E5EZ-C3MTD	E5EC-CR2DSM-800
E5EZ-C3MLD	
Option Units	—
E53-AZ03	E5EC-CR2DSM-804
E53-AZB	
E53-AZ01	E5EC-CR2DSM-804
E5EZ-C3MT	E5EC-CR2ASM-804 Use it with the interface convertor model K3SC-10 connected.
E5EZ-C3ML	
Option Units	—
E53-AZ03	E5EC-CR2ASM-804
E53-AZB	
E53-AZ01	E5EC-CR2ASM-804 Use it with the interface convertor model K3SC-10 connected.
E5EZ-C3T	E5EC-CR2ASM-800

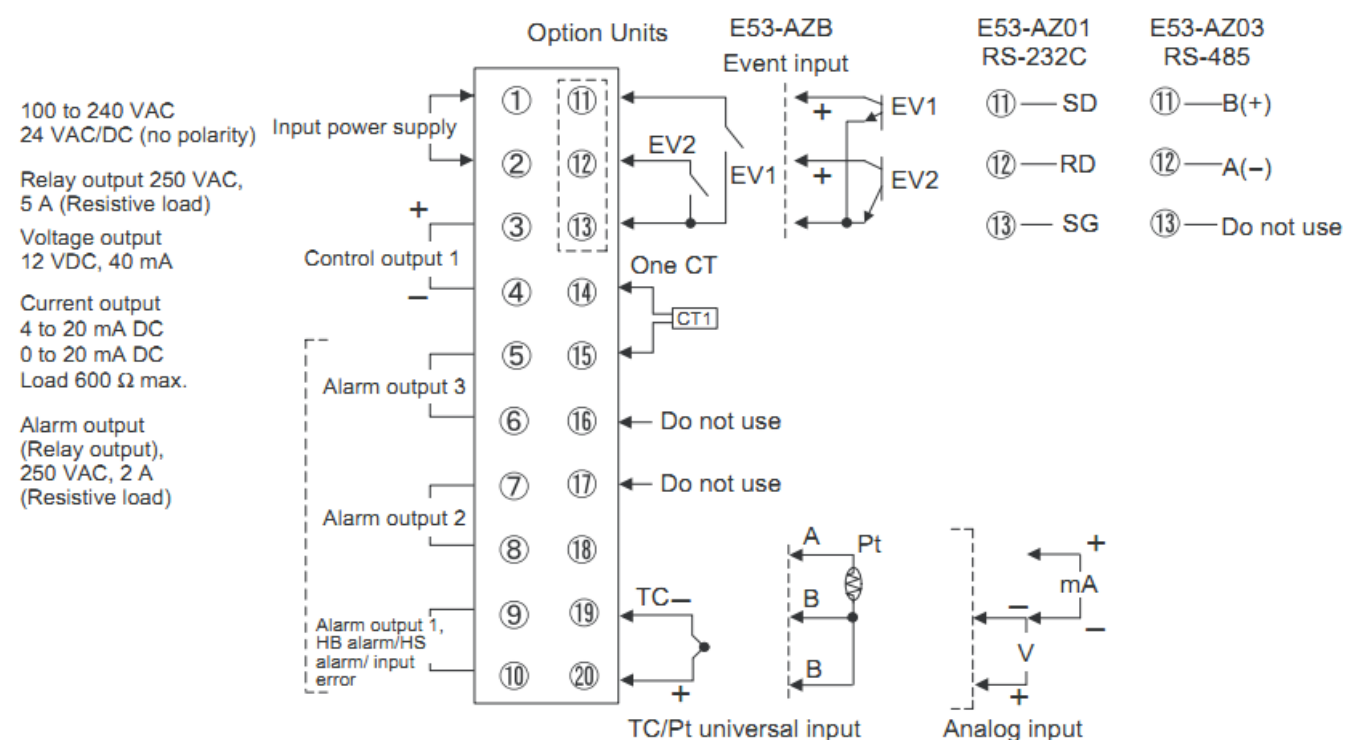
[Body color]

Product discontinuation Model E5EZ series	Recommendable replacement Model E5EC-8[][] series
Appearance and height of characters  Height of characters PV: 14 mm, SV: 9.5 mm Indicator color: PV in red, SV in green	Appearance and height of characters  Height of characters PV: 18 mm, SV: 11 mm, MV: 7.8 mm Indicator color: PV in white, SV in green, MV in yellow MV: Nothing is displayed for the default setting.

[Wire connection]

Product discontinuation
Model E5EZ series

Terminal arrangement



Wiring connection

Attach a crimp terminal as a terminal.

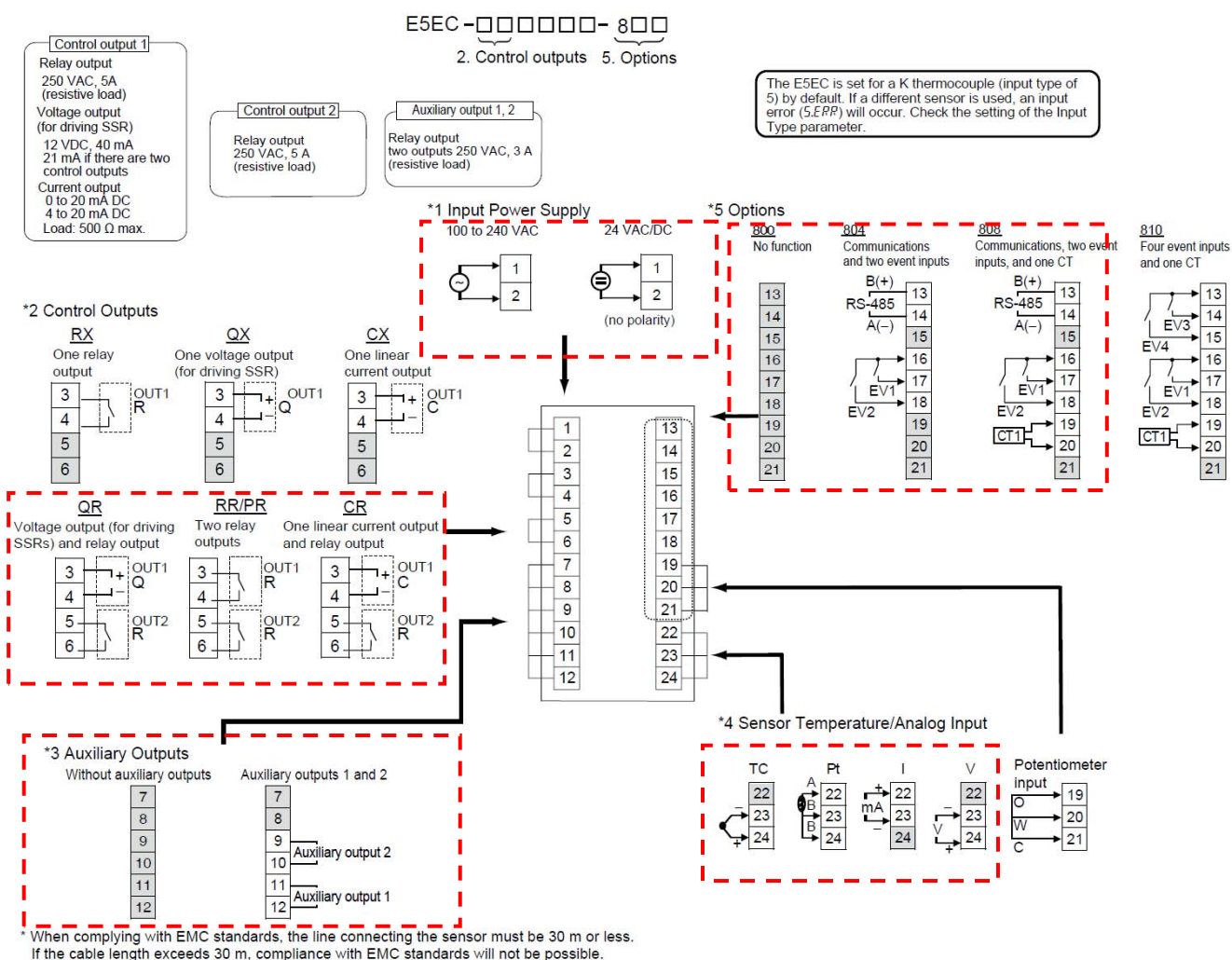
Use an M3.5 crimp terminal of the following shape.



Recommended replacement Model E5EC-8□□ series

Terminal arrangement

The terminal numbers and crimp terminal sizes differ from those of E5EZ.



* When complying with EMC standards, the line connecting the sensor must be 30 m or less.
If the cable length exceeds 30 m, compliance with EMC standards will not be possible.

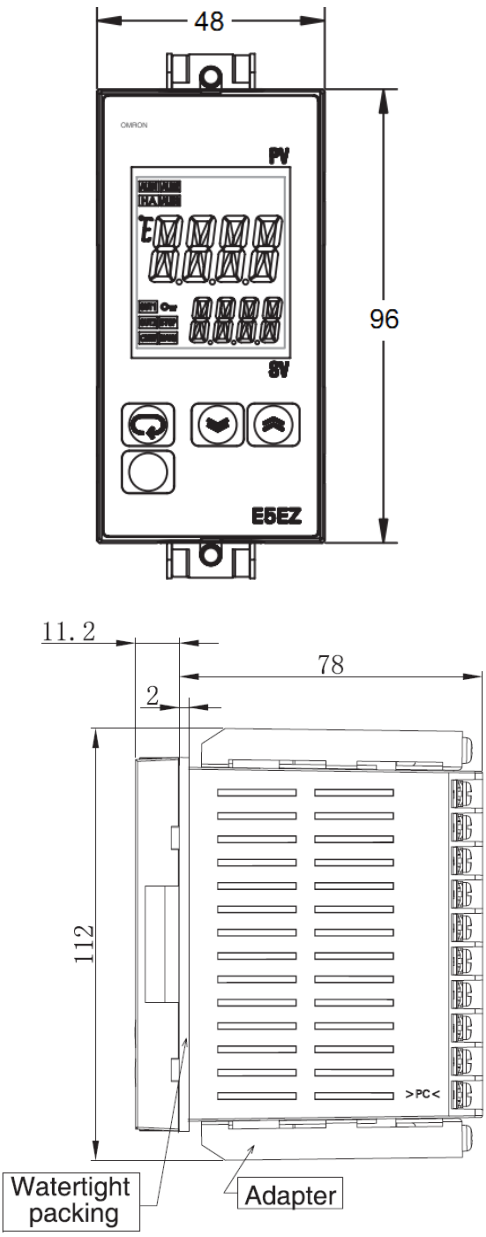
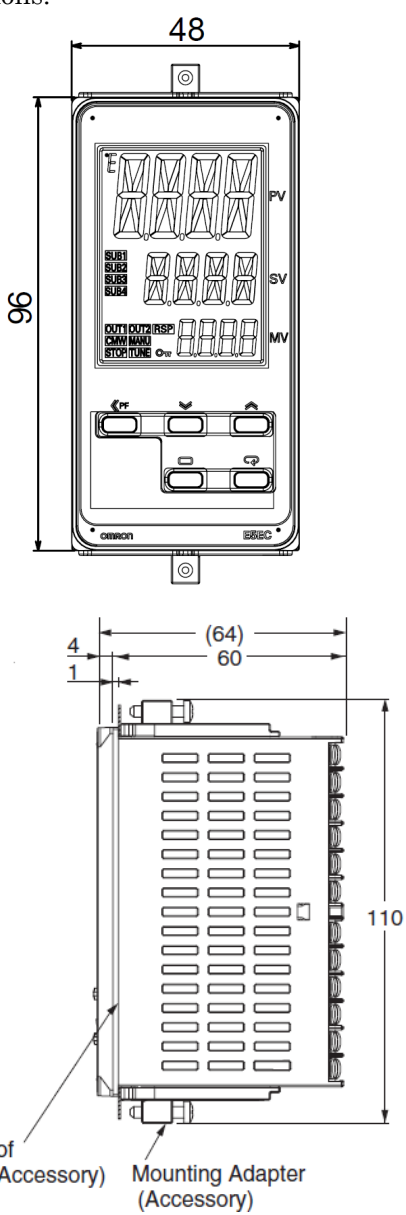
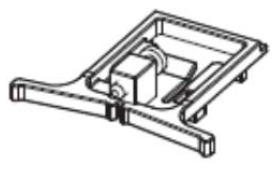
Wiring connection

Attach a crimp terminal as a terminal.

Use an M3 crimp terminal of the following shape.



[Mounting dimensions]

Product discontinuation Model E5EZ series	Recommendable replacement Model E5EC-8[] series
 Depth: 78 mm Weight: approx. 250 g (Body only) Possible to mount closely side-by-side. Possible to have draw-out replacement. Mounting Bracket (Two Adaptors provided) 	There is no change in the panel cutout dimensions.  Depth: 60 mm Weight: approx. 210 g (Body only) Possible to mount closely side-by-side. Not possible to have draw-out replacement. Mounting Adapter Y92F-51 (Two Adaptors provided) 

Product discontinuation Model E5EZ series	Recommendable replacement Model E5EC-8[][] series
Waterproof Packing Y92S-P5 (for DIN 48 x 96) 	Waterproof Packing Y92S-P9 (for DIN 48 x 96) 

[Ratings]

Item		Product discontinuation Model E5EZ series	Recommended replacement Model E5EC-8□□ series
Power consumption		100 to 240 VAC: 8.5 VA 24 VAC/VDC: 6 VA (24 VAC)/4 W (24 VDC)	Models with option selection of 800: 6.6 VA max. at 100 to 240 VAC, and 4.1 VA max. at 24 VAC or 2.3 W max. at 24 VDC All other models: 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
Input impedance		Current input: 150 Ω max., Voltage input: 1 MΩ minimum.	Current input: 150 Ω max., Voltage input: 1 MΩ minimum.
Control outputs *	Relay output	SPST-NO, 250 VAC, 5 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 (reference value)
	Voltage output (for driving SSR)	Output voltage: 12 VDC +15%/-20% (PNP), Max. load current: 40 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.)
	Current output	4 to 20 mA DC/0 to 20 mA DC, Load: 600 Ω max., Resolution: approx. 2,700	4 to 20 mA DC/0 to 20 mA DC, Load: 500 Ω max., Resolution: approx. 10,000
Auxiliary outputs *	Number of outputs	3	2
	Output specifications	Relay output: SPST-NO, 250 VAC, 2 A (resistive load), Electrical life: 100,000 operations, Minimum applicable load: 5 V, 10 mA	SPST-NO. relay outputs, 250 VAC, 3 A (resistive load), Electrical life: 100,000 operations, Minimum applicable load: 10 mA at 5 V (reference value)
Event input	Number of inputs	2	2 or 4 (depends on model)
	External contact input specification	Contact input: ON: 1 kΩ max., OFF: 100 kΩ minimum.	Contact input: ON: 1 kΩ max., OFF: 100 kΩ minimum.
		Non-contact input: ON: Residual voltage: 1.5 V max., OFF: Leakage current: 0.1 mA max.	Non-contact input: ON: Residual voltage: 1.5 V max., OFF: Leakage current: 0.1 mA max.
		Current flow: Approx. 7 mA per contact	Current flow: Approx. 7 mA per contact
Potentiometer input		—	100 Ω to 10 kΩ
Indication method		11-segment digital display and individual indicators (7-segments displays also possible) Character height: E5EZ: PV: 14 mm, SV: 9.5 mm,	11-segment digital display and individual indicators Character height: E5EC: PV: 18.0 mm, SV: 11.0 mm, MV: 7.8 mm
Other functions (change points)		—	Functions to be deleted Detecting heater overcurrent, Counting control output ON/OFF, Automatic adjustment of cooling coefficient, Switching indicator colors, Switching indicator characters Functions to be added Moving average of inputs

* Notice: E5EZ series have 1 control output and 3 ALM outputs.
But E5EC-8□□ series have 2 control outputs and 2 auxiliary outputs.
If customer need 3 ALM outputs function, they can assign the control output 2 as ALM output.

[Characteristics]

Item		Product discontinuation Model E5EZ series	Recommended replacement Model E5EC-8□□ series
Input sampling cycle		250 ms	50 ms
Integral time (I)		0 to 3999 s (in units of 1 s)	Standard, heating/cooling, or Position-proportional (Close): 0 to 9999 s (in units of 1 s), 0.0 to 999.9 s (in units of 0.1 s) Position-proportional (Floating): 1 to 9999 s (in units of 1 s), 0.1 to 999.9 s (in units of 0.1 s)
Derivative time (D)		0 to 3999 s (in units of 1 s)	0 to 9999 s (in units of 1 s), 0.0 to 999.9 s (in units of 0.1 s)
Proportional band (P) for cooling		—	Temperature input: 0.1 to 999.9°C or °F (in units of 0.1°C or °F) Analog input: 0.1 to 999.9% FS (in units of 0.1% FS)
Integral time (I) for cooling		—	0 to 9999 s (in units of 1 s), 0.0 to 999.9 s (in units of 0.1 s)
Derivative time (D) for cooling		—	0 to 9999 s (in units of 1 s), 0.0 to 999.9 s (in units of 0.1 s)
Control cycle		0.5, 1 to 99 s (in units of 1 s)	0.1, 0.2, 0.5, 1 to 99 s (in units of 1 s)
Dielectric strength		2,000 VAC, 50 or 60 Hz for 1 min (between terminals with different charge)	2,300 VAC, 50/60 Hz for 1 min between terminals of different charge
Weight		Controller: Approx. 250 g, Mounting Bracket: Approx. 100 g	Controller: Approx. 210 g, Adapter: Approx. 4 g × 2
Setup Tool port		Provided on the bottom of the E5EZ. An E58-CIFQ1 USB-Serial Conversion Cable is required to connect the computer to the E5EZ	E5EC top panel: An E58-CIFQ2 USB-Serial Conversion Cable is used to connect to a USB port on the computer.
Standards	Approved standards	UL 61010C-1, CSA C22.2 No. 1010-1	UL 61010-1, Korean Radio Waves Act (Act 10564)

[Communication performance]

Item		Product discontinuation Model E5EZ series	Recommended replacement Model E5EC-8□□ series
Connection of transmission path		RS-485: Multipoint RS-232C: Point-to-point	RS-485: Multidrop
Communication method		RS-485 (two-wire, half duplex) or RS-232C	RS-485 (two-wire, half duplex)
Protocol		CompoWay/F, Sysway, Modbus	CompoWay/F, Modbus
DTE speed		1200, 2400, 4800, 9600, 19200, 38400 bps	9600, 19200, 38400, 57600 bps
Error detection		Vertical parity (none, even, odd) Frame check sequence (FCS) with SYSWAY Block check character (BCC) with CompoWay/F or CRC-16 Modbus	Vertical parity (none, even, odd) Block check character (BCC) with CompoWay/F or CRC-16 Modbus
Interface		RS-485, RS-232C	RS-485
Other functions (change points)		—	Function to be added Program-less communications, Compo communications, Copying

[Operation ratings]

Product discontinuation

Model E5EZ series

Input range

Thermocouples/Platinum Resistance Thermometers (Universal Inputs)

Input Type	Platinum resistance thermometer				Thermocouple								Infrared temperature sensor				Analog input	
Name	Pt100		JPt100	K	J	T	E	L	U	N	R	S	B	10 to 70°C	60 to 120°C	115 to 165°C	140 to 260°C	0 to 50 mV
Temperature range (°C)	1800											1700	1700	1800				Usable in the following ranges by scaling: -1999 to 9999 or -199.9 to 999.9
	1700																	
	1600																	
	1500																	
	1400																	
	1300			1300														
	1200																	
	1100																	
	1000																	
	900	850																
	800	500.0																
	700																	
	600		500.0															
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	400	0.0	100.0															
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Models with Analog Inputs

Input Type	Current		Voltage		
Input specification	4 to 20mA	0 to 20 mA	1 to 5 V	0 to 5 V	0 to 10 V
Setting range	Usable in the following ranges by scaling: -1999 to 9999, -199.9 to 999.9, -19.99 to 99.99 or -1.999 to 9.999				
Setting number	0	1	2	3	4

Shaded settings are the default settings.

**Recommended replacement
Model E5EC-8[] series**

Input range

Set values 19 or higher for input ranges will be changed.

Also, analog inputs of 0 to 50 mV range cannot be used.

● Thermocouple/Platinum Resistance Thermometer (Universal inputs)

Sensor type	Platinum resistance thermometer		Thermocouple																Infrared temperature sensor							
Sensor specification	Pt100	JPt100	K	J	T	E	L	U	N	R	S	B	W	PLII	10 to 70°C	60 to 120°C	115 to 185°C	140 to 260°C								
Temperature range (°C)	850																									
	Set value	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24

 Shaded settings are the default settings.

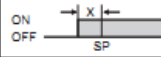
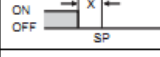
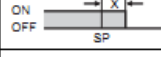
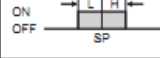
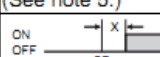
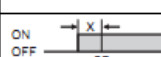
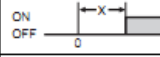
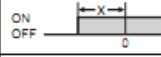
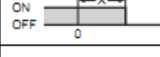
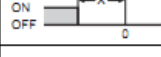
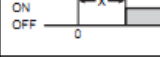
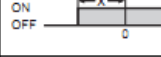
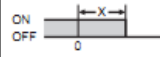
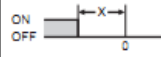
●Analog input

Input type	Current		Voltage		
Input specification	4 to 20 mA	0 to 20 mA	1 to 5 V	0 to 5 V	0 to 10 V
Setting range	Usable in the following ranges by scaling: -1999 to 9999, -199.9 to 999.9, -19.99 to 99.99 or -1.999 to 9.999				
Set value	25	26	27	28	29

Product discontinuation
Model E5EZ series

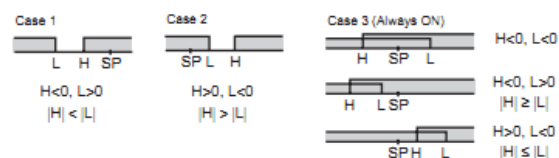
Alarm types

Select alarm types out of the 12 alarm types listed in the following table.

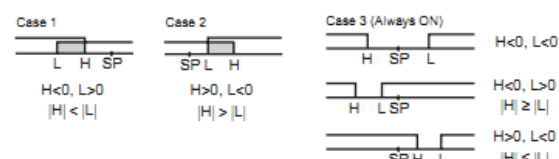
Set value	Alarm type	Alarm output operation	
		When X is positive	When X is negative
0	Alarm function OFF	Output OFF	
1 (See note 1.)	Upper- and lower-limit	ON OFF 	(See note 2.)
2	Upper limit	ON OFF 	ON OFF 
3	Lower limit	ON OFF 	ON OFF 
4 (See note 1.)	Upper- and lower-limit range	ON OFF 	(See note 3.)
5 (See note 1.)	Upper- and lower-limit with standby sequence	ON OFF 	(See note 4.)
6	Upper-limit with standby sequence	ON OFF 	ON OFF 
7	Lower-limit with standby sequence	ON OFF 	ON OFF 
8	Absolute-value upper-limit	ON OFF 	ON OFF 
9	Absolute-value lower-limit	ON OFF 	ON OFF 
10	Absolute-value upper-limit with standby sequence	ON OFF 	ON OFF 
11	Absolute-value lower-limit with standby sequence	ON OFF 	ON OFF 
12 (See note 6.)	LBA (for alarm 1 type only)	---	

Note: 1. With set values 1, 4 and 5, the upper and lower limit values can be set independently for each alarm type, and are expressed as "L" and "H."

2. Set value: 1, Upper- and lower-limit alarm



3. Set value: 4, Upper- and lower-limit range



4. Set value: 5, Upper- and lower-limit with standby sequence
For Upper- and Lower-Limit Alarm Described Above

- Case 1 and 2
Always OFF when the upper-limit and lower-limit hysteresis overlaps.
- Case 3: Always OFF

5. Set value: 5, Upper- and lower-limit with standby sequence
Always OFF when the upper-limit and lower-limit hysteresis overlaps.

6. Set value: 12, LBA (loop break alarm) can be set only for alarm 1 type.

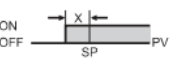
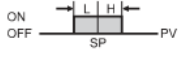
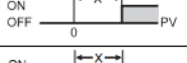
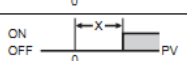
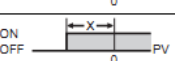
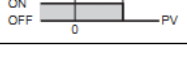
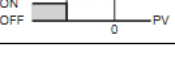
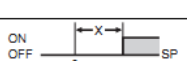
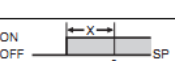
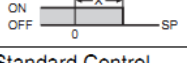
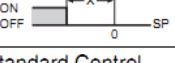
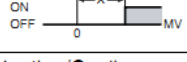
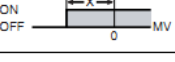
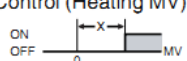
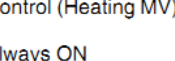
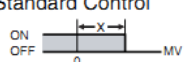
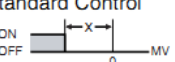
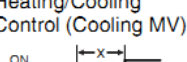
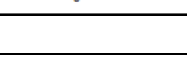
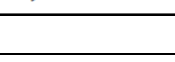
Set the alarm types for alarms 1 to 3 independently in the initial setting level. The default setting is 2 (upper limit).

**Recommended replacement
Model E5EC-8[] series**

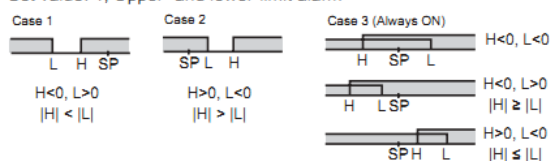
Alarm types

The set values 14 and higher were newly added for the alarm types.

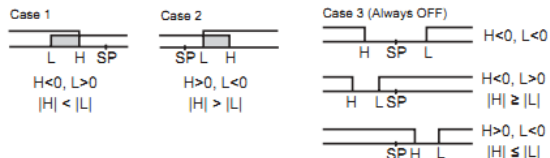
Each alarm can be independently set to one of the following 17 alarm types. The default is 2: Upper limit. (see note.)
Auxiliary outputs are allocated for alarms. ON delays and OFF delays (0 to 999 s) can also be specified.

Set value	Alarm type	Alarm output operation		Description of function
		When alarm value X is positive	When alarm value X is negative	
0	Alarm function OFF	Output OFF		No alarm
1	Upper- and lower-limit *1		*2	Set the upward deviation in the set point for the alarm upper limit (H) and the lower deviation in the set point for the alarm lower limit (L). The alarm is ON when the PV is outside this deviation range.
2 (default)	Upper-limit			Set the upward deviation in the set point by setting the alarm value (X). The alarm is ON when the PV is higher than the SP by the deviation or more.
3	Lower-limit			Set the downward deviation in the set point by setting the alarm value (X). The alarm is ON when the PV is lower than the SP by the deviation or more.
4	Upper- and lower-limit range *1		*3	Set the upward deviation in the set point for the alarm upper limit (H) and the lower deviation in the set point for the alarm lower limit (L). The alarm is ON when the PV is inside this deviation range.
5	Upper- and lower-limit with standby sequence *1		*4	A standby sequence is added to the upper- and lower-limit alarm (1). *6
6	Upper-limit with standby sequence			A standby sequence is added to the upper-limit alarm (2). *6
7	Lower-limit with standby sequence			A standby sequence is added to the lower-limit alarm (3). *6
8	Absolute-value upper-limit			The alarm will turn ON if the process value is larger than the alarm value (X) regardless of the set point.
9	Absolute-value lower-limit			The alarm will turn ON if the process value is smaller than the alarm value (X) regardless of the set point.
10	Absolute-value upper-limit with standby sequence			A standby sequence is added to the absolute-value upper-limit alarm (8). *6
11	Absolute-value lower-limit with standby sequence			A standby sequence is added to the absolute-value lower-limit alarm (9). *6
12	LBA (alarm 1 type only)	-		*7
13	PV change rate alarm	-		*8
14	SP absolute value upper limit alarm			This alarm type turns ON the alarm when the set point (SP) is higher than the alarm value (X).
15	SP absolute value lower limit alarm			This alarm type turns ON the alarm when the set point (SP) is lower than the alarm value (X).
16	MV absolute value upper limit alarm *9	Standard Control 	Standard Control 	This alarm type turns ON the alarm when the manipulated variable (MV) is higher than the alarm value (X).
		Heating/Cooling Control (Heating MV) 	Heating/Cooling Control (Heating MV) Always ON	
17	MV absolute value lower limit alarm *9	Standard Control 	Standard Control 	This alarm type turns ON the alarm when the manipulated variable (MV) is lower than the alarm value (X).
		Heating/Cooling Control (Cooling MV) 	Heating/Cooling Control (Cooling MV) Always ON	

- *1 With set values 1, 4 and 5, the upper and lower limit values can be set independently for each alarm type, and are expressed as "L" and "H."
- *2. Set value: 1, Upper- and lower-limit alarm



- *3. Set value: 4, Upper- and lower-limit range



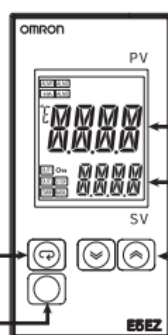
- *4. Set value: 5, Upper- and lower-limit with standby sequence
For Upper- and Lower-Limit Alarm Described Above *2
- Case 1 and 2
Always OFF when the upper-limit and lower-limit hysteresis overlaps.
 - Case 3: Always OFF
- *5. Set value: 5, Upper- and lower-limit with standby sequence
Always OFF when the upper-limit and lower-limit hysteresis overlaps.
- *6. Refer to the E5□C Digital Controllers User's Manual (Cat. No. H174) for information on the operation of the standby sequence.
- *7. Refer to the E5□C Digital Controllers User's Manual (Cat. No. H174) for information on the PV change rate alarm. This setting cannot be used with a position-proportional model.
- *8. Refer to the E5□C Digital Controllers User's Manual (Cat. No. H174) for information on the PV change rate alarm.
- *9. When heating/cooling control is performed, the MV absolute upper limit alarm functions only for the heating operation and the MV absolute lower limit alarm functions only for the cooling operation.

[Operation methods]

Product discontinuation Model E5EZ series

- Mode key
Press this key to change the contents of the display.
Press this button for 1 second or longer for reverse scroll.

- Level key
Use this key to change levels:
- Press the key and the key together for at least 3 seconds to switch to protect level.



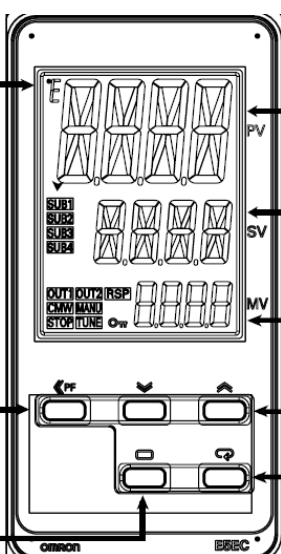
- No.1 display
Process value or set data symbol
- No.2 display
Set point, set data read-out value or changed input value
- Up and Down keys
Use the keys to change the values displayed on the No.2 display.
Each press of key increments or advances the values displayed on the No.2 display.
Each press of key decrements or returns the values displayed on the No.2 display.

Recommended replacement Model E5EC-8□□ series

- °C / °F : temperature unit
The temperature unit is displayed when the displayed value is a temperature.
Either °C or °F is displayed according to the set value of the temperature unit.

- Shift key (PF key)
The default PF Setting parameter is for shifting the digit. This is a function key.
When it is pressed, the function set for the PF Setting parameter will operate.

- Level key
Use this key to change levels:



- No.1 display
Process value or set data type
- No.2 display
Set point, set data read-out value or changed input value
- No. 3 display (E5EC-PR: Nothing is displayed for the default setting)
MV and Multi-SP.
- Up and Down keys
Each press of key increments or advances the values displayed on the No.2 display.
Each press of key decrements or returns the values displayed on the No.2 display.
- Mode key
Press this key to change the contents of the display.
Press this button for 1 s or longer for reverse scroll.
- Press the key and the key together for at least 3 seconds to switch to protect level.

Specifications and prices in this product news are as of the issue date and are subject to change without notice.
Only main changes in specifications are described in this document. Please be sure to read the relevant catalogs, datasheets, product specifications, instructions, and manuals for precautions and necessary information when using products.