OMRON®

Temperature Controller	E5CS-X

1/16 DIN Sized Multi-range Controller Offers Selectable Control Modes, Built-in Alarm

■ Accurate to ±0.5% of full scale
■ Multiple scale ranges allows flexibility to match application
■ Field-selectable temperature ranges in °F and °C
■ Selectable ON/OFF and PID control with auto-tuning of proportional band
■ 8-function alarm, standard
■ Tamper-proof setting, faulty sensor compensation and controller diagnostics
■ Easy-to-read 11 mm high LED display
■ Nonvolatile memory backup
■ 3-year warranty

Ordering Information

■ TEMPERATURE CONTROLLERS

Control modes		PID or ON/OFF action		
Sensor intput type		Thermocouple	Platinum RTD(Pt: 100Ω, (DIN and JIS standard types)	Interchangeable thermistor (THE types)
Output	Contact	E5CS-R1KJX-F	E5CS-R1PX-F	E5CS-R1GX-F
	Voltage	E5CS-Q1KJX-F	E5CS-Q1PX-F	E5CS-Q1GX-F

■ TEMPERATURE RANGES

Thermocouple Input Type

Input type	Type K						Type J				
Switch setting	0	1	2	3	4	5	6	6	7	8	9
Temperature range	0 to 200	0 to 300	0 to 400	0 to 500	0 to 600	0 to 999	0 to 999	0 to 200	0 to 300	0 to 400	0 to 500
Scale indication	°C	°C	°C/°F	°C/°F	°C/°F	°C/°F	°F	°C	°C	°C/°F	°C/°F
Unit of measure	1° C or F										

Platinum RTD Input Type

Switch setting	0	1	2	3	4	5	6	7	8
Temperature range	-50 to 50	0.0 to 50.0	-20 to 80	0.0 to 99.9	0 to 200	0 to 300	0 to 400	0 to 600	0 to 800
Scale indication	°C	°C	°C	°C/°F	°C/°F	°C	°C/°F	°F	°F
Unit of measure	1° C or F								

Thermistor Input Type

Switch setting	0	1	2	3	4	5	6	7	8	9
Temperature range	-50 to 50	0 to 100	50 to 150	100 to 200	150 to 300	-50 to 100	0 to 200	100 to 300	200 to 400	300 to 600
Scale indication	°C					°F				
Unit of measure	1° C or F									

■ ACCESSORIES

Description		Part number
Protective cover	Hard plastic; protects front panel against dust, dirt and water drops	Y92A-48

■ REPLACEMENT PARTS

Description	Part number
Adapter for panel mounting (supplied with each unit)	Y92F-30

Specifications

Part number			E5CS-☐1KJX	E5CS-☐1PX	E5CS-☐1GX
Sensor input type			Thermocouple Type J (IC) and Type K (CA)	Platinum RTD (Pt: 100Ω) DIN or JIS standard	Thermistor (interchangeable type)
Supply voltage			100 to 240 VAC, 50/60 Hz; operates on 85 to 110% of rated volate		
Power consumption			Approx. 7 VA		
Control output	Contact	Type	SPDT relay		
		Max. load	3 A, 250 VAC (resistive load)		
	Voltage	Logic load	12 VDC, 20 mA with short-circuit protection		
	Hysteresis		0.2% of full scale during ON/OFF control action		
	Response time	Output	2 seconds for output to change		
		Display	2 seconds for displayed indication to change		
	Service life	Mechanical	10 million operations minimum with contact output		
		Electrical	100,000 operations minimum with contact output		
Alarm output		Type	SPST-NO relay		
		Max. load	1 A, 250 VAC (resistive load)		
		Setting range	Absolute value alarm: Same as control output setting range Others: 0 to full scale		
Setting accuracy			Set value coincides with indicated value, so no relative error exists		
Indication accuracy			±0.5% of full scale, ±1 digit max.		
Display Range			-999 to 999 (Limited to input type)		
Control modes	Type		ON/OFF and PID with automatic tuning of proportional band, switch selectable		
	Proportional band		3 to 20% (in PID mode) automatically adjusted according to the rise time of the controlled system		
	Reset time		4 minutes (in PID mode)		
	Rate time		0.4 minutes (in PID mode)		
	Proportional period		2 or 20 seconds, switch selectable		
	Sampling period		500 ms		
Materials			Plastic case		
Mounting			Fits 1/16 DIN panel cutout; includes panle mounting adapter		
Connections			Screw terminals		
Weight			170 g (6 oz.) without mounting adapter		
Enclosure ratings	Front panel		IP50, NEMA 4 with optional cover Y92A-48N		
	Rear panel		IP30		
	Terminals		IP00		
Approvals	UL		Recognized, File Number E68481		
	CSA		Certified, File Number LR59623		
Ambient temperature	Operating		-10° to 55°C (14° to 131°F)		
	Storage		-25° to 65°C (-13° to 149 °F)		
Humidity			35 to 85% RH		
Insulation resistance			20 MΩ minimum at 500 VDC		
Dielectric strength			2,000 VAC, 50/60 Hz for 1 minute between current-carrying terminals of different polarity		
Vibration	Mechanical durability		10 to 55 Hz, 0.75 mm (0.03 in) double amplitude in X, Y, and Z directions for 2 hours each		
	Malfunction durability		2 to 55 Hz, 2 G in X, Y, and Z directions for 10 minutes each		
Shock	Mechanical durability		30 m/s^2, in 6 directions, 3 times each		
	Malfunction durability		100 m/s^2, in 6 directions, 3 times each		

Dimensions

Unit: mm (inch)

Panel Cutout

45 $^{+0.6}_{-0}$
(1.77)

45 $^{+0.6}_{-0}$
(1.77)

Max. 60
(2.36)
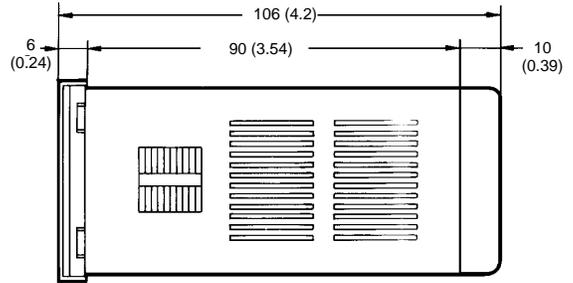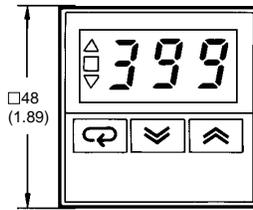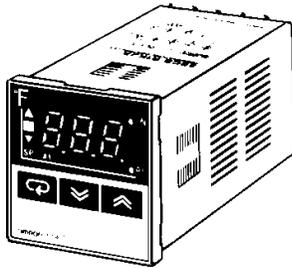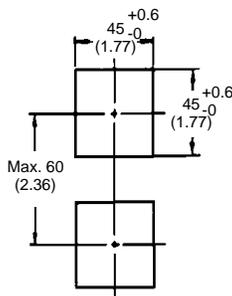
Side-by-side Mounting of Several Temperature Controllers

L

45 $^{+0.6}_{-0}$
(1.77)
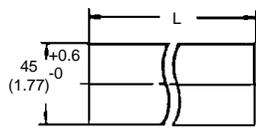
Controllers	2	3	4	5	6
L	93.5 $^{+1}_{-0}$	141.5 $^{+1}_{-0}$	189.5 $^{+1}_{-0}$	237.5 $^{+1}_{-0}$	285.5 $^{+1}_{-0}$

$$L=(48 \times block -2.5)^{+1}_{-0}$$
for tight side-by-side mounting

Note: 1. Recommended panel thickness is 1 to 8 mm (0.04 to 0.31 in).
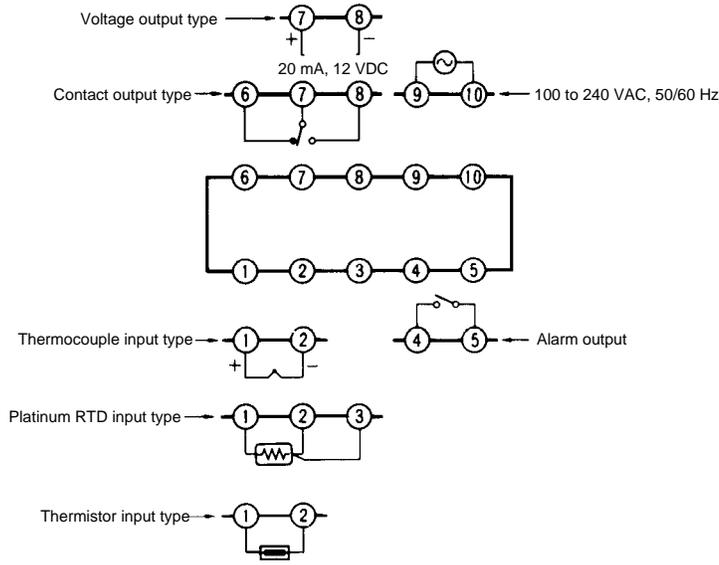2. Because mounting brackets are attached to the top and bottom of a temperature controller, tight side-by-side mounting is possible.

106 (4.2)

6 (0.24)   90 (3.54)   10 (0.39)

Nomenclature

1. Main display
9. Deviation indicators
2. Control output indicator
8. Display data identifier
3. Alarm indicator
7. Write protection key
4. Up key
6. Return key
5. Down key

omron E5CS
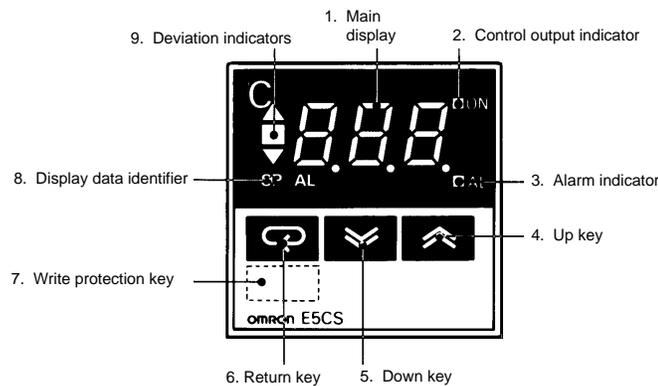
Key	Description	Key	Description
1	Main display sequentially displays the present temperature, set temperature, and an alarm value each time the return key is pressed.	7	The hidden write protection key provides protection against unauthorized to set temperatures and is used in conjunction with the internal "protection" switch. If the internal protection switch is set to ON, then to obtain Up and Down operation, the hidden key must be pressed simultaneously with the Up and Down keys. If the internal protection switch is set to OFF, changes can be made simply by pressing the Up and Down keys.
2	Control output indicator lights when the output is ON.		
3	Alarm indicator lights when the alarm output is ON.		
4	Up key increases the set temperature or alarm value when pressed. Increases the value quickly when held down.		
5	Down key decreases the set temperature or alarm value when pressed. Decreases the value quickly when held down.	8	Display data identifier lights SP when the set temperature is displayed on the main display and AL when an alarm value is displayed.
6	Return key changes the value displayed on the main display each time pressed.	9	Red deviation indicators light an up arrow when the present temperature is higher than the set temperature and light a down arrow when the present value is lower than the set temperature. The green block indicates the temperature deviation is within ±1% of the full scale.

3

Connections _____

Voltage output type ⟶ ⑦—⑧
+ | —
20 mA, 12 VDC

Contact output type ⟶ ⑥—⑦—⑧ ⑨—⑩ ⟵ 100 to 240 VAC, 50/60 Hz

⑥—⑦—⑧—⑨—⑩

①—②—③—④—⑤

Thermocouple input type ⟶ ①—② | ④—⑤ ⟵ Alarm output
+ —

Platinum RTD input type ⟶ ①—②—③

Thermistor input type ⟶ ①—②

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