SECTION 6
Troubleshooting

This section describes the troubleshooting of the Thermac E5□J Temperature Controller.

6-1 Error Display and Output

The Thermac E5□J Temperature Controller incorporates a self-diagnostic function. The following table lists the process values and outputs that the E5□J has when errors result.

PV display	Error	Output		Items to be checked
		Control output	Alarm output	
PV S.Err	Abnormal input	OFF (2 mA max.)	Processed as an abnormally high temperature.	• Whether or not the input has exceeded the possible controlling range (±10% of the set temperature range) (see note). • Whether or not the setting of the input type is incorrect. • Whether or not the input has been incorrectly wired, broken, or short-circuited.
PV E1.11	Abnormal memory	OFF (2 mA max.)	OFF	Turn the E5□J OFF and ON. If the display does not change, the E5□J need repairs. If the display returns to normal, the E5□J may have been influenced by noise. Check for noise interference.
PV E333	Abnormal A/D converter	OFF (2 mA max.)	OFF	
PV AErr	Abnormal calibration data. Displayed for 2 s when the E5□J is turned on.	Normal operation (accuracy not guaranteed)		The E5□J needs calibration. Contact your OMRON representative.

Note If the input is within the possible controlling range but exceeding the possible display range (–1999 to 9999), ((((will be displayed if the value is smaller than –1999 and)))) will be displayed if the value is larger than 9999, at which time, the control output and alarm output will work normally.

6-2 Troubleshooting

Refer to the following table for troubleshooting.

Phenomenon	Probable cause	Countermeasure
Nothing is displayed when the E5□J is turned on.	The internal mechanism is not inserted properly into the housing.	Properly insert the internal mechanism into the housing.
	The power supply is not connected to the power supply terminals properly.	Properly connect the power supply to the power supply terminals.
	No power is supplied or the supplied power is not within the specified range.	Supply a voltage of 85 to 264 VAC to the power supply terminals of the E5□J.
No setting is possible.	The key protection switch is set to ON.	Set the key protection switch to OFF.
	The E5□J with a communications function is in remote mode.	The E5□J must be in local mode or no front key is available.
When the Up Key is pressed for set point value setting, the value flashes within the set temperature range and the setting is not possible.	The set point limit function is active.	Properly set the set point lower limit and set point upper limit values.
No alarm, heater current value display, or heater burnout alarm is displayed.	The alarm mode switch is set to 0.	Select the proper alarm mode.
	A Current Output Unit is used for control output.	No heater burnout is detected if the Current Output Unit is used for control output.

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Phenomenon	Probable cause	Countermeasure
The process value is abnormal or not obtained.	The input polarity is wrong or the connection is wrong.	Properly wire the terminals.
	The input-type setting is incorrect.	Properly set the input with the input-type selector.
	No compensating lead wires are used for the extension of the thermocouple.	Use proper compensating lead wires.
	The thermocouple and E5□J is connected via wires other than proper lead wires.	Use a dedicated thermocouple connector. If a metal material different from the thermocouple is used to connect the thermocouple and E5□J, a temperature error may result.
	The sensor is broken or short-circuited.	Use a good sensor.
	The E5□J is influenced by noise or other induction.	Separate the input wires as far as possible from the origin of the noise.
	°C is used instead of °F or vice versa.	Use the proper temperature unit.
	The process value is shifted because the input shift function is used.	Set the input shift value to 0.
No control output is obtained.	No Control Output Unit is connected.	Connect a Control Output Unit (sold separately).
	Event input 2 of the E5□J is set to STOP.	Open event input 2 and set the E5□J to RUN.
The heater burnout detecting function is abnormal.	No Current Transformer (CT) is used.	Properly connect the dedicated E54-CT1 or E54-CT3 (sold separately) to the E5□J.
	The heater burnout alarm value is not proper.	Set the proper heater burnout alarm value taking into consideration the fluctuation of the heater supply voltage and measurement error.
	The heater is turned ON or OFF with an output other than the control output.	Use the control output. Heater burnout detection synchronizes with the control output. Any other output cannot be used.

Simple Method to Determine Temperature Controller Error or Sensor Error

When Thermocouple is Used

If the temperature displayed by the E5□J is close to the room temperature when the input terminals of the E5□J is short-circuited, the E5□J deemed to be normal and it is presumed that the sensor is broken, short-circuited, or incorrectly wired.

When Platinum Resistance Thermometer is Used

If the temperature displayed by the E5□J is close to 0.0°C when a resistor with a resistance of approximately 100 Ω is inserted between terminals A and –B of the E5□J and terminals +B and –B of the E5□J are short-circuited, the E5□J deemed to be normal and it is presumed that the sensor is broken, short-circuited, or incorrectly wired.

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