

ADP DKN DVS DX Error Guide

Error 1

Possible Causes:

- A. Sensor is disconnected**
- B. Sensor is defective**
- C. CPU board is defective**

A. Disconnected sensor

1. To check if the sensor has been disconnected, first switch the circuit breaker off.
2. Remove the cover where the control panel is located.
3. Once the cover has been removed, locate the CPU board.
4. There are 2 sensor wires (1 red and 1 green/black) that attach to the TB1 connections on the CPU board. Look for the TB1 label.
 - a. Note that there are three connections on TB1. The connections are TB1-1, TB1-2, TB1-3.
 - b. A screwdriver is needed to properly attach/remove the sensor wires.
5. **The red wire should be connected to TB1-2 and the green/black wire should be connected to TB1-3.**
6. If the sensor is properly connected as stated in the previous step, skip to **Step B** titled **Defective sensor**. If there is a loose wire, proceed to **Step 7**.
7. If a wire is loose, loosen the connection terminal's screw using a screwdriver, slide the end of the wire under the screw, then tighten the screw to secure the wire.
8. The sensor is now properly connected.

B. Defective sensor

1. To check if the sensor is defective, turn off the circuit breaker.
2. Using an ohmmeter, check sensor resistance by placing one ohmmeter probe on the metal lead of each wire.
3. If sensor resistance is over 10 Mohms, the sensor is defective and needs to be replaced. To order a replacement part, please contact Yamato Scientific customer service at (408) 235-7725.

C. Defective CPU board (planar board)

1. To check if the CPU is defective, turn off the circuit breaker.
2. Using an ohmmeter, check sensor resistance by placing one ohmmeter probe on the metal lead of each wire.
4. If sensor resistance is between 3 and 9 ohms, the CPU board is defective and needs to be replaced. To order a replacement part, please contact Yamato Scientific customer service at (408) 235-7725.

If Error 1 remains after performing the troubleshooting steps listed above, please email technical support at technical@yamato-usa.com

Error 2

Possible Causes:

- A. Temporary electrical noise**
- B. SSR is defective**
- C. CPU is defective**

A. Run a power cycle and check for Error 2 again

1. Turn off circuit breaker
2. Turn on circuit breaker
3. Set target temperature to 0°C and start the cycle in fixed temperature mode.
4. If error 2 occurs, proceed to **Step B** titled **Defective SSR**. If error 2 does not occur, you have successfully completed troubleshooting.

B. Defective SSR

1. Turn off circuit breaker
2. Turn on circuit breaker and start the cycle
3. Check output voltage on the CPU board. Look for the CN2 label and measure the voltage at CN2-1 and CN2-2.
 - a. Note that you must perform step 3 before error 2 occurs.
 - b. If the voltage is about 0V DC, the SSR is defective and must be replaced. To order a replacement part, please contact Yamato Scientific customer service at (408) 235-7725.
 - i. Note: **Turn off circuit breaker** and **use a thermal compound** when installing a replacement SSR

C. Defective CPU

1. Turn off circuit breaker
2. Turn on circuit breaker
3. Check output voltage on the CPU board. Look for the CN2 label and measure the voltage at CN2-1 and CN2-2.
 - a. Note that you must perform step 3 before error 2 occurs.
 - b. If the voltage is about 12 V DC, the CPU may be defective and must be replaced. To order a replacement part, please contact Yamato Scientific customer service at (408) 235-7725.

If Error 2 remains after performing the troubleshooting steps listed above, please email technical support at technical@yamato-usa.com

Error 3

Possible Causes:

- A. Disconnected wires**
- B. Defective heater(s)**
- C. Defective main relay (X1)**
- D. Defective SSR**
- E. Defective CT sensor**
- F. Defective CPU board**

A. Disconnected wires

1. Turn off circuit breaker.
2. Check all wiring that is directly connected to the heater circuit. Refer to the product's manual for the wiring diagram.
3. If all wires are connected correctly, skip to **Step B** titled **Defective heater(s)**.
4. If wiring is incorrect, re-wire according to the wiring diagram.
5. Turn on circuit breaker then start cycle.
5. If error 3 still occurs, please contact Yamato Scientific technical support. If error 3 does not occur, you have successfully completed troubleshooting.

B. Defective heater(s)

1. Using an ohmmeter, check heater resistance by testing heater resistance at T-2 and T-4. To locate T-2 and T-4, please refer to the product manual.
2. If heater resistance reads correctly, skip to **Step C** titled **Defective main relay (X1)**.
3. If heater resistance is large (e.g. O.L., 10 Mohms, etc), the heater is defective and needs to be replaced. To order a replacement part, please contact Yamato Scientific customer service at (408) 235-7725.

C. Defective main relay (X1)

1. Unplug wires from contact terminal of X1 relay (main power relay)
 - a. Note: Insulate terminals of unplugged wires to avoid electrical sparks or shock.
2. Turn on circuit breaker.
3. Set target temperature to maximum then start cycle
4. **Before** error 3 occurs, check resistance on the X1 relay (main power relay) contact terminals.
 - a. If resistance is around 0 ohms, ignore **Step 4b** and continue to **Step 5**.
 - b. If resistance is large (e.g. O.L., 10 Mohms, etc), check the voltage on the terminal coil on the X1 relay before error 3 occurs. To locate the terminal coil, please refer to the product manual.
 - i. If the voltage is over 100V AC, the X1 relay is defective and needs to be replaced. To order a replacement part, please contact Yamato Scientific customer service at (408) 235-7725.
 - ii. If the voltage is around 0V AC, please skip to **Step F** titled **Defective CPU board**.
5. Turn off circuit breaker.
6. Plug the wires back into the X1 relay (main power relay).
7. Turn on circuit breaker and start the cycle.
8. **Before** error 3 occurs, check the current on the heater line.

- a. If the current is over 0 amps (calculate current volume from heater wattage and voltage), skip to **Step E.** titled **Defective CT sensor.**
 - b. If the current is around 0 amps, continue to **Step 9.**
9. **Before** error 3 occurs, check the output voltage at CN2-1 and CN2-2 on the CPU board.
 - a. If the voltage is around 0 V DC, skip to **Step**
 - b. If the voltage is around 12 V DC, continue to **Step D**

D. Defective SSR

1. If you have followed troubleshooting **Steps A through C** and were directed here, the SSR is defective and needs to be replaced. To order a replacement part, please contact Yamato Scientific customer service at (408) 235-7725.
 - a. Note: **Turn off circuit breaker** and **use a thermal compound** when installing a replacement SSR

E. Defective CT sensor

1. Turn off circuit breaker
2. Unplug CN1 from CPU board.
 - a. CN1 is labeled on the CPU board. If you are unable to locate CN1, please refer to the product manual.
3. Turn on circuit breaker and start the cycle.
4. Check the voltage at CN1-1 and CN1-2 on the unplugged wire before error 3 occurs.
 - a. If voltage is over 0V DC, skip to **Step**
 - b. If voltage is around 0V DC, the CT sensor is defective. Continue to **Step 5.**
5. Turn off circuit breaker.
6. The CT sensor is defective and needs to be replaced. To order a replacement part, please contact Yamato Scientific customer service at (408) 235-7725.

F. Defective CPU board

1. If you have followed troubleshooting **Steps A through C(4-b-ii)** and were directed here, the CPU board is defective and needs to be replaced. To order a replacement part, please contact Yamato Scientific customer service at (408) 235-7725.

If Error 3 remains after performing the troubleshooting steps listed above, please email technical support at technical@yamato-usa.com

Error 15

Possible Cause:
Defective CPU

Defective CPU

1. Turn off circuit breaker.
2. The CPU is defective and needs to be replaced. To order a replacement part, please contact Yamato Scientific customer service at (408) 235-7725.

If Error 15 remains after replacing the CPU, please email technical support at technical@yamato-usa.com

Error 17

Possible Cause:
Internal communication failure

Internal communication failure

1. Turn off circuit breaker.
2. The CPU board and temperature sensor(s) need to be replaced. To order a replacement part, please contact Yamato Scientific customer service at (408) 235-7725.

If Error 15 remains after replacing the CPU board and sensor(s), please email technical support at technical@yamato-usa.com

Error 19

Possible Causes:

- A. Too much material in chamber**
- B. Incorrect OH parameter**
- C. Incorrect calibration offset parameter**
- D. Disconnected sensor**
- E. Defective CPU board**
- F. Defective sensor**

Note: Unload all material from chamber before troubleshooting

A. Too much material in chamber

1. Make sure not to overload the chamber. Refer to the product manual for proper material spacing in the chamber.

B. Incorrect OH parameter

1. To properly set the OH parameter, set it to your target temperature + 15 degrees C or higher.

Procedure:

- a. Press the Submenu key.
 - b. Use the up/down arrow keys until OH is displayed on the screen.
 - c. Press Enter.
 - d. Use the up/down arrow keys to set the OH temperature.
Note: A **minimum of 15 degrees** above your target temperature is recommended to avoid false overheating errors.
 - e. Press Enter
 - f. If your OH parameter is properly set, skip to **Step C.** titled **Incorrect calibration offset parameter.**
2. Turn off circuit breaker.
 3. Turn on circuit breaker and start the cycle.
 4. If error 19 remains, continue to **Step C.**

C. Incorrect calibration offset parameter

1. To properly set the calibration offset parameter, it must be set to 0.

Procedure:

- a. Press the Submenu key
 - b. Use the up/down arrow keys until Cal is displayed on the screen.
 - c. Press Enter.
 - d. Use the up/down arrow keys to set Cal to 0.
Note: Unless required by your operation, the calibration offset parameter should remain at 0 to avoid false overheating errors.
 - e. Press Enter
 - f. If your calibration offset parameter is properly set, skip to **Step D.** titled **Disconnected sensor.**
2. Turn off circuit breaker.
 3. Turn on circuit breaker and start the cycle.
 4. If error 19 remains, continue to **Step D.**

D. Disconnected sensor

1. To check if the sensor has been disconnected, first switch the circuit breaker off.
2. Remove the cover where the control panel is located by removing three screws located at the top of the cover.
3. Once the cover has been removed, locate the CPU board towards the right side of the compartment.
4. There are 2 sensor wires (1 red and 1 green/black) that attach to the TB2 connections on the CPU board. TB2 is labeled on the CPU board.
 - a. Note that there are two connections on TB2.
 - b. A screwdriver is needed to properly attach/remove the sensor wires.
5. **The red wire should be connected to TB2-1 and the green wire should be connected to TB2-2.**
6. If the sensor is properly connected as stated in the previous step, skip to **Step E** titled **Defective CPU board.** If there is a loose wire, proceed to **Step 7.**

7. If a wire is loose, loosen the connection terminal's screw using a screwdriver, slide the end of the wire under the screw, then tighten the screw to secure the wire.
8. The sensor is now properly connected.

E. Defective CPU board

1. To check if the CPU board is defective, turn off the circuit breaker.
2. Using an ohmmeter, check sensor resistance by placing one ohmmeter probe on the metal lead of each wire.
 - a. If the sensor resistance is between 3 to 9 ohms, the CPU board is defective and needs to be replaced. To order a replacement part, please contact Yamato Scientific customer service at (408) 235-7725.
 - b. If the sensor resistance is large (e.g. O.L., 10 Mohms, etc), continue to **Step F** titled **Defective sensor**.

F. Defective Sensor

1. If you have followed troubleshooting **Steps A through E** and were directed here, the sensor is defective and needs to be replaced. To order a replacement part, please contact Yamato Scientific customer service at (408) 235-7725.

If Error 19 remains after performing the troubleshooting steps listed above, please email technical support at technical@yamato-usa.com