



How to Troubleshoot an Input 1 Failure on a Honeywell UDC Controller

When you first start troubleshooting any control loop you must make sure you understand and recognize what are the three elements of your control loop. In this first step you will identify the controller, final control device and sensor. This should be the first step in any control loop troubleshooting procedure.

In this control loop we will identify the analog input as a type K sensor, the controller will be a UDC2500 and the final control device will be a Honeywell Mod Motor mounted onto a gas butterfly valve. The process which this PID loop is controlling will be a batch heat treat furnace.

Below I have outlined the steps you will need to accomplish to troubleshoot an input failure:

Step 1: If you have an input failure, always start at the sensor mounted on the oven or process. Make sure the system is not running with parts in the oven. Using your temperature calibrator use the same extension lead wire used for Type K sensors and read the temperature by placing the lead wires on the terminal strip of the thermocouple. Type K lead wire coating should be either yellow or brown. The two lead wires incased in the outside coating should be red for negative and yellow for positive. The thermocouple head will identify the positive and negative terminals.

Step 2: Read the temperature on your calibrator. If the calibrator reads a temperature within the range of a type K thermocouple, which is -326 Deg F to 2300 Deg F, then you have proven your thermocouple is good. If your temperature reading is 9999 or showing open, then it is time to replace your thermocouple. Thermocouples do not have an infinite life span. The resistance will break down over time during process heat up and cool down. If your thermocouple is reading an acceptable temperature, then go to step 3.

Step 3: Since we have proven our thermocouple is good the next step will be to check that we have the correct temperature transmitted through the extension wire to the UDC2500 controller. At this step place your calibrator thermocouple extension wire on the input terminals on the back of the instrument in the control cabinet. If you are not reading the correct temperature which was read at the thermocouple, then you probably have one of the following two issues. You either have the incorrect thermocouple extension wire, the wire is broken or there is a short from positive to negative lead on the extension wire. If this is the case replace the extension wire. If everything checks out good go to step 4.

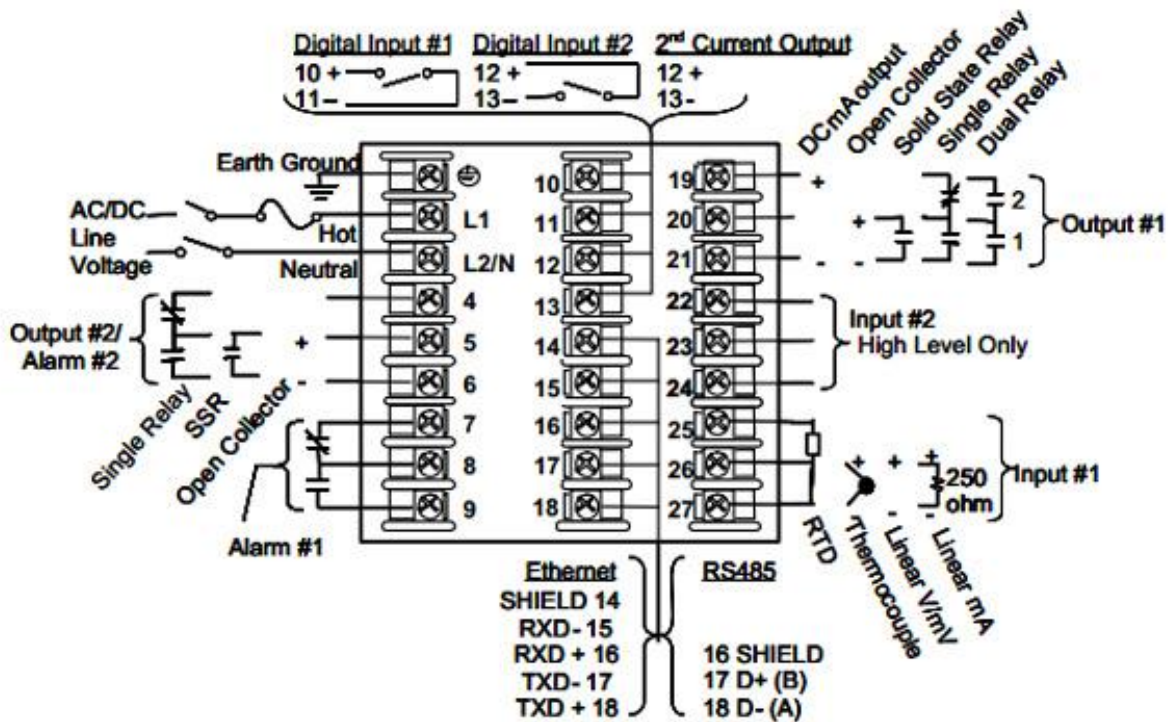
Step 4: You can perform a calibration check on the UDC2500 controller which is outlined in the UDC manual. A quick step to make sure it is not the calibration would be to go into the configuration of the UDC2500 using the setup and menu keys. Scroll to input 1 and change the sensor to another random thermocouple setting. Push the lower display button after this change is made then go back into the configuration and change the sensor back to type K. This will default the UDC2500 calibration back to the factory setting. At this point if you do not see the correct temperature on the front of the UDC2500 you probably have a bad input board or cold junction connection. You will need to call Loy Instrument or request assistance through our web site.



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Wiring Diagram



Note: Input #1 in the above example are terminals 26 and 27. The terminal 26 will be positive and 27 will be negative.

Loy Instrument Web Site:

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