

# I/O Point Troubleshooting

## Possible Causes

If you suspect an I/O error, there are several things that could be causing the problem.

- High-Speed I/O configuration error
- A blown fuse in your machine or panel (the DL06 does not have internal I/O fuses)
- A loose terminal block
- The auxiliary 24 VDC supply has failed
- The Input or Output Circuit has failed

## Some Quick Steps

When troubleshooting the DL06 Micro PLCs, please be aware of the following facts which may assist you in quickly correcting an I/O problem.

- HSIO configuration errors are commonly mistaken for I/O point failure during program development. If the I/O point in question is in X0–X2, or Y0–Y1, check all parameter locations listed in Chapter 3 that apply to the HSIO mode you have selected.
- The output circuits cannot detect shorted or open output points. If you suspect one or more faulty points, measure the voltage drop from the common to the suspect point. Remember when using a Digital Volt Meter, leakage current from an output device such as a triac or a transistor must be considered. A point which is off may appear to be on if no load is connected the point.
- The I/O point status indicators are logic-side indicators. This means the LED which indicates the on or off status reflects the status of the point with respect to the CPU. On an output point the status indicators could be operating normally while the actual output device (transistor, triac etc.) could be damaged. With an input point, if the indicator LED is on, the input circuitry is probably operating properly. Verify the LED goes off when the input signal is removed.
- Leakage current can be a problem when connecting field devices to an I/O point. False input signals can be generated when the leakage current of an output device is great enough to turn on the connected input device. To correct this install a resistor in parallel with the input or output of the circuit. The value of this resistor will depend on the amount of leakage current and the voltage applied but usually a 10K to 20K resistor will work. Verify the wattage rating of the resistor is correct for your application.
- Because of the removable terminal blocks on the DL06, the easiest method to determine if an I/O circuit has failed is to replace the unit if you have a spare. However, if you suspect a field device is defective, that device may cause the same failure in the replacement PLC as well. As a point of caution, you may want to check devices or power supplies connected to the failed I/O circuit before replacing the unit with a spare.

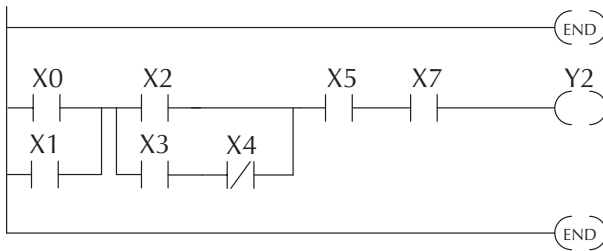
Output points can be set on or off in the DL06 series CPUs. If you want to do an I/O check-out independent of the application program, follow the procedure below:

Step	Action
1	Use a handheld programmer or <i>DirectSOFT32</i> to communicate online to the PLC.
2	Change to Program Mode.
3	Go to address 0.
4	Insert an "END" statement at address 0. (This will cause program execution to occur only at address 0 and prevent the application program from turning the I/O points on or off).
5	Change to Run Mode.
6	Use the programming device to set (turn) on or off the points you wish to test.
7	When you finish testing I/O points delete the "END" statement at address 0.



**WARNING:** Depending on your application, forcing I/O points may cause unpredictable machine operation that can result in a risk of personal injury or equipment damage. Make sure you have taken all appropriate safety precautions prior to testing any I/O points.

### Handheld Programmer Keystrokes Used to Test an Output Point

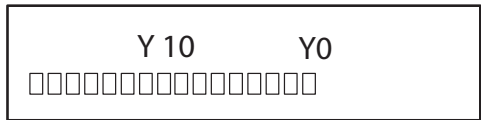


Insert an END statement at the beginning of the program. This disables the remainder of the program.

From a clear display, use the following keystrokes



Use the PREV or NEXT keys to select the Y data type



Use arrow keys to select point, then use ON and OFF to change the status

