

## CPU Indicators

The DL05 Micro PLCs have indicators on the front to help you determine potential problems with the system. In normal runtime operation only, the RUN and PWR indicators are on. The table below is a quick reference to potential problems.



Indicator Status	Potential Problems
PWR (LED off)	1. System voltage incorrect
	2. PLC power supply faulty
RUN (LED off)	1. CPU programming error
	2. CPU in program mode
CPU (LED on)	1. Electrical noise interference
	2. Internal CPU defective

### PWR Indicator

In general there are three reasons for the CPU power status LED (PWR) to be OFF:

1. Power to the unit is incorrect or is not applied.
2. PLC power supply is faulty.
3. Other component(s) have the power supply shut down.

If the voltage to the power supply is not correct, the PLC may not operate properly or may not operate at all. Use the following guidelines to correct the problem.



**WARNING: To minimize the risk of electrical shock, always disconnect the system power before inspecting the physical wiring.**

1. First, disconnect the external power.
2. Verify that all external circuit breakers or fuses are still intact.
3. Check all incoming wiring for loose connections. If you're using a separate termination block, check those connections for accuracy and integrity.
4. If the connections are acceptable, reconnect the system power and verify the voltage at the DL05 power input is within specification. If the voltage is not correct shut down the system and correct the problem.
5. If all wiring is connected correctly and the incoming power is within the specifications, the PLC internal supply may be faulty.

The best way to check for a faulty PLC is to substitute a known good one to see if this corrects the problem. The removable connectors on the DL05 make this relatively easy. If there has been a major power surge, it is possible the PLC internal power supply has been damaged. If you suspect this is the cause of the power supply damage, consider installing an AC line conditioner to attenuate damaging voltage spikes in the future.

### RUN Indicator

If the CPU will not enter the Run mode (the RUN indicator is off), the problem is usually in the application program, unless the CPU has a fatal error. If a fatal error has occurred, the CPU LED should be on. (You can use a programming device to determine the cause of the error.)

Both of the programming devices, Handheld Programmer and *DirectSOFT32*., will return an error message describing the problem. Depending on the error, there may also be an AUX function you can use to help diagnose the problem. The most common programming error is “Missing END Statement”. All application programs require an END statement for proper termination. A complete list of error codes can be found in Appendix B.

### CPU Indicator

If the CPU indicator is on, a fatal error has occurred in the CPU. Generally, this is not a programming problem but an actual hardware failure. You can power cycle the system to clear the error. If the error clears, you should monitor the system and determine what caused the problem. You will find this problem is sometimes caused by high frequency electrical noise introduced into the CPU from an outside source. Check your system grounding and install electrical noise filters if the grounding is suspected. If power cycling the system does not reset the error, or if the problem returns, you should replace the CPU.

## Communications Problems

If you cannot establish communications with the CPU, check for these problems:

- The cable is disconnected.
- The cable has a broken wire or has been wired incorrectly.
- The cable is improperly terminated or grounded.
- The device connected is not operating at the correct baud rate (9600 baud).
- The device connected to the port is sending data incorrectly.
- A grounding difference exists between the two devices.
- Electrical noise is causing intermittent errors.
- The PLC has a bad communication port and should be replaced.

For problems in communicating with *DirectSOFT32* on a personal computer, refer to the *DirectSOFT32* manual. It includes a troubleshooting section that can help you diagnose PC problems in communications port setup, address or interrupt conflicts, etc.