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1. INTRODUCTION

The fan failure detection option for NX-series UPS allows a user to quickly determine if the cooling fans in a UPS are functioning correctly. There are separate LED’s on the front panel to indicate if the fan failure detection circuit has power, if one or more of the upper fans have failed, and if one or more of the lower fans have failed. The fan failure detection circuit also uses the existing “FUSE/TEMP INV SHUTDOWN” audible and visual indicators to more noticeably draw attention to a problem.
2. FRONT PANEL INDICATORS

An NX-series UPS with fan failure detection has three extra LED’s on the front panel of the UPS (see Figure 2.1): “FAN CIRCUIT POWER” (green), “UPPER FAN FAILURE” (red), and “LOWER FAN FAILURE” (red).

![Figure 2.1: Additional front panel LED’s on an NX-series UPS with fan-failure detection](image)

2.1. “FAN CIRCUIT POWER” LED

The “FAN CIRCUIT POWER” LED shines green as long as there is 12VDC being supplied by the 220VAC/12VDC power supply mounted in the side panel. If this LED turns off, these are the most probable causes:

- The output of the UPS is not powered.
- The 0.5A inline fuse on the input to the 220VAC/12VDC power supply blew.
- The 220VAC/12VDC power supply failed.
- Pin 1 or 2 of CN3 on the fan failure circuit board in the side panel of the UPS is not connected properly.
- Pin 1 or 4 of CN2 on the fan failure circuit board in the side panel of the UPS is not connected properly.
2.2. FAN FAILURE LED’s

Under normal operation, both the “UPPER FAN FAILURE” LED and the “LOWER FAN FAILURE” LED should be off. If either of the fan failure LED’s are on, these are the most probable causes:

- If both fan failure LED’s are on, the “AC PS” fuse may have blown. See Figure 2.2.
- If only the “UPPER FAN FAILURE” LED is on, the “UPPER FAN” fuse may have blown. See Figure 2.2.
- If only the “LOWER FAN FAILURE” LED is on, the “LOWER FAN” fuse may have blown. See Figure 2.2.
- One or more of the fans in the UPS may have slowed down or stopped.

Figure 2.2: Various fuses behind the front panel of an NX-series UPS
2.3. “FUSE/TEMP INV SHUTDOWN” LED & AUDIBLE ALARM

The “FUSE/TEMP INV SHUTDOWN” LED in the “STATUS” section of LED’s on the front panel of the UPS will flash and an audible alarm will beep if either of the fan failure LED’s turns on. They will also flash and beep if the fan failure circuit 12VDC power fails while the UPS output is powered. If the “FUSE/TEMP INV SHUTDOWN” LED is flashing and the UPS is beeping and only the “FAN CIRCUIT POWER” LED is on, this means that there is no problem with the fans, but the UPS has detected an over-temperature condition on one of the modules in the UPS. This condition is separate from a fan failure situation and is covered in other documentation.
3. TROUBLESHOOTING

The schematic in Figure 3.1, along with the possible causes of problems listed in the previous sections, should be sufficient to diagnose problems with the fan failure detection system.

Figure 3.1: UPS Circuit Diagram showing Fan Failure Circuit
4. CONTACT INFORMATION

QA / Warranty Questions

Always On UPS Systems Inc.
Bldg 1 – 150 Campion Road,
Kelowna, BC, Canada, V1X 7S8
Phone: (250) 491-9777 Ext 209
Fax: (250) 491-9775
Email: qa@alwaysonups.com
Website: www.alwaysonups.com

Software Questions

Always On UPS Systems Inc.
Bldg 1 – 150 Campion Road,
Kelowna, BC, Canada, V1X 7S8
Phone: (250) 491-9777 Ext 204
Fax: (250) 491-9775
Email: webmaster@alwaysonups.com
Website: www.alwaysonups.com

Additional Purchases or Upgrades

Always On UPS Systems Inc.
Bldg 1 – 150 Campion Road,
Kelowna, BC, Canada, V1X 7S8
Phone: (250) 491-9777 Ext 451
Fax: (250) 491-9775
Email: sales@alwaysonups.com
Website: www.alwaysonups.com