

Q330 LED Meanings

Normal Boot Sequence:

1. Apply power to Q330.
2. GPS Power Fault LED on/off.
3. Primary Power Fault LED on/off.
4. CPU System Fault LED on/off.
5. Datacomm & Boot System LEDs, and Analog Power Fault LED all on.
6. Datacomm & Boot System LEDs off.
7. System Status (red) and GPS Status LEDs both on (system status flashes rapidly for several seconds then stays on).
8. LAN Link OK & LAN Data LED both on (data LED flashes with network traffic).
9. Analog Power Fault LED off (can hear relays clicking several seconds after this signifying calibration process).

Normal Power Down Sequence:

1. Remove power from Q330.
2. Primary Power Fault LED flashes until slave power discharged (typically 7+ flashes on Q330, 4+ flashes on units with installed AUXAD option, including all Q330HRs).

LEDs

LED entries show the color and the source of the signal that controls them in parenthesis.

Definitions:

Zeroth.Flashing fast - LED flashes once or twice per second.

Zeroth.Flashing slow - LED flashes once every 5 seconds.

Status LEDs:

1. System (red/green, memory decoder)
 1. Red, flashing fast, during boot - several seconds during boot, indicates system running in boot loader; if it continues to flash, there was a fatal error trying to erase or program the Q330's FLASH.
 2. Red, flashing slow - no GPS time.
 3. Green-Red, flashing slow - GPS had a lock but currently not locked; usually seen during GPS power down when GPS power cycling is enabled.
 4. Green, flashing slow - acquiring data, good GPS time
2. GPS System (yellow, I/O decoder) – on when GPS powered on.
3. LAN Data (yellow, Ethernet controller) – when Link OK is on, flashes to indicate link activity.
4. LAN Link OK (green, Ethernet controller) – on when Ethernet enabled and a link is detected. If Ethernet 'Always On' is not selected (Configuration | Interfaces | Ethernet tab) and the Q330 is connected to a network only after the Q330 boot is complete, up to several minutes may elapse before the Q330 checks the link status and powers an active link. The LED will light when this process is complete.

Fault LEDs (all red):

1. Datacomm System (memory decoder) – flash every 5 seconds indicates one or more data buffers have reached the user-set full alert threshold. See 'Full Alert' parameter in 'Configuration | Data Ports'. This threshold is enabled when a value is set, or disabled when set to zero. There is a threshold for each data port. Factory default is all off except DP4 set to 95%.
2. CPU System (slave uC) – Loss of communication between Slave PIC and DSP. Will reboot after time out (4 minutes (fixed)).
3. Boot System (memory decoder) – the number of flashes indicates the error (the user will typically only see #5; the rest are for programmer debugging, something fixed before the user ever sees it):
 1. Data overflow
 2. Out of memory
 3. Packet memory error
 4. Bad structure
 5. Slave processor error
 6. Packet size error
2. GPS Power (slave uC) – fast flashes when the software has turned off the GPS module due to an over-current condition in the antenna circuit. The current limit can be set (in Willard, see Configuration | Operational Limits).
3. Analog Power (AMB/PSU uC) – on when Q330 booted and running but analog pack is not powered. This can be due to a scheduled window with analog power off, or to a fault causing the Q330 to shut down the analog pack.
4. Primary Power (slave uC) – blinks when Q330 power removed until slave processor power is exhausted (Q330 without AUXAD: about 8 - 12 seconds; Q330 with AUXAD option, & Q330HR); blinks continuously when Q330 shut down by software due to an under-voltage condition (in Willard, see Configuration | Operational Limits). During a scheduled power down window, the LED will not blink, even if power is removed. When power is removed, allow at least 20 seconds before restoring power.
5. Over-Current Power (hardware) – lit when over-current condition exists (i.e. current through main power connector opens 1.1A auto-reset fuse); remove power to the Q330 immediately. Normally the software current limit will shut down the Q330 (in Willard, see Configuration | Operational Limits).