

## Diagnostic LED Fault Code Explanation

### **Fault sequence**

When a fault condition occurs, the compressor will stop but fan/water pump will usually continue to operate. Approximately every minute thereafter, fan/water pump stops and compressor attempts to re-start.

### **One Flash – Low Voltage – Most often reported fault**

System voltage has fallen below 10.4v (22.8). Voltage must be above 11.7v (24.2) for system to re-start. Check voltage at “+” and “-” terminals on controller while compressor tries to start. Check system wiring. This alarm can also be caused by a momentary disturbance on the main DC circuit. Often resulting from an engine start, this can also be caused by operation of a pump, electric winch or windless, and from inverter/charger power “blips”.

### **Two Flashes – Fan overload – Very rare**

Fan circuit output (small “+” and “F”) is overloaded. This output is always 12v, even with 24v system input, and load must not exceed 1 amp. If a water pump is used, a relay must be incorporated in the circuit.

### **Three Flashes – Compressor non start – Very common**

Compressor overloaded and unable to start. Most often associated with a system shutdown followed by an immediate re-start attempt while refrigerant pressure differential in system is still high. Typically, system will eventually re-start unaided. Often associated with a re-start attempt after a low voltage failure. May also be due to a warm start-up in hot conditions, especially with air-cooled systems, where pre-cooling the box with ice and setting compressor to run at slowest speed are recommended.

### **Four Flashes – Compressor unable to reach minimum speed – Never reported.**

### **Five Flashes – Electronics overload – Rarely reported**

Heat sensor on electronics heat-sink sees temp over 212F, indicating compressor working very hard and using excess power. Compressor is stopped until heat-sink temp drops below 176F. High ambient temps increase risk of heat-sink overheating, especially on warm start-up. SSC and AEO compressor speed controllers reduce risk of electronic overload by incorporating a ramp start sequence. Five flashes is most often associated with high condensing temperatures (dirty or clogged air or water condenser, fouled Keel Cooler), refrigerant overcharge, or non-compressible liquids in the system (water, excess oil, leak locating fluid, etc).