



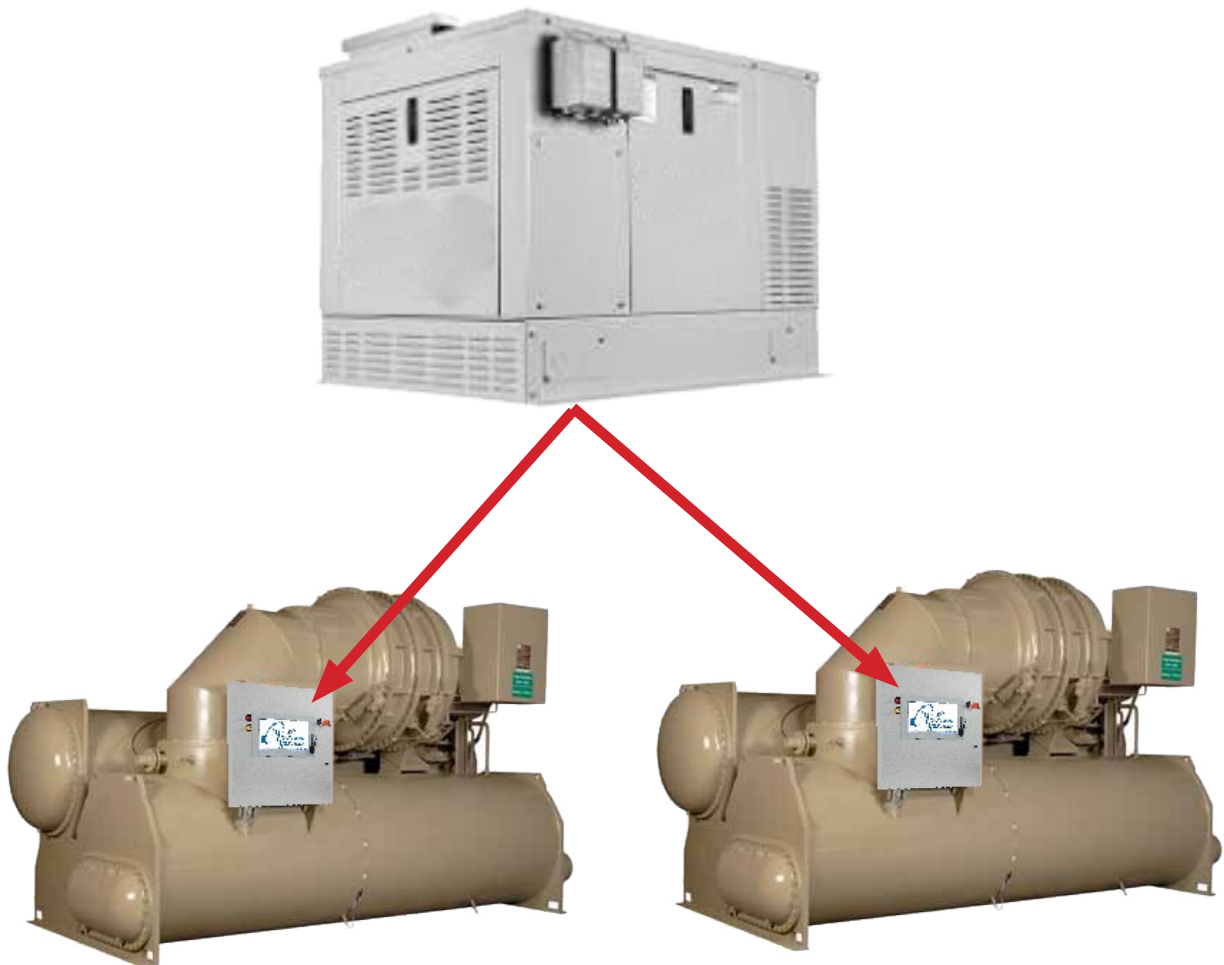
# APPLICATION NOTE

## APP #147

### Revision History

Date	Author	Description
10-22-2020	DEW	Setup

## Generator Applications & Low Voltage Brown Out



Any questions regarding this release, contact: [support@mcscontrols.com](mailto:support@mcscontrols.com)

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### 1.1. Low Voltage Brown Out

MCS controllers have a low voltage brown out detection on the incoming power. When the incoming power is too low to safely operate the MCS controller, the low voltage brown out circuit will force a hardware reset to the microprocessor which will stop all operations on the controller and a “Computer Reset” alarm is stored in the controller history.

### 1.2. Non +12vdc Boards

The MCS-Magnum controller, hardware revision 9.1 or less, and Micromag controller revision 6.0 or less, have the following brown out voltage levels:

Controller	Incoming Power	Low Voltage Brown Out (voltage drops below this value for 0.1 seconds)	Min Voltage required to get out of brown out
MAGNUM	24 VAC	19.5	22.2
MICROMAG		19.5	22.2
MAGNUM	115 VAC	95	101
MICROMAG		95	101
MAGNUM	230VAC	181	199
MICROMAG		181	199

### 1.3. New +12vdc MCS Controllers

The +12vdc boards are powered from a switching power supply that operates from 88vac to 265vac. Once the voltage is at 88 or below, brown out occurs, voltage returns to 95vac or above, control resumes normal operation.

### 1.4. Generator Powered Applications:

If the application is running on generator power and “Computer Reset” alarms are occurring when a compressor starts, the generator is not able to keep the power from dropping below the brown out voltage level. When a compressor starts, its motor draws locked rotor amps for a short period of time which puts a large load on the generator. If the generator is undersized or close to its maximum output the starting of a compressor can droop or drop the voltage

**To solve the brown out/computer reset, a Universal Power Supply(UPS) can be installed to supply power to the MCS controller during a low voltage condition.**

*The new +12vdc MCS controller should not have a brown out/computer reset because it's power supply has a large operating range.*