The Ag6400 requires two power supplies, +3.3V for the on-board controller and -45V to -57V to provide power to the 4 outputs. To fully conform to the IEEE802.3at specification both of these supplies must be isolated from ground (as shown below in Figure 1).

In the Ag6400 datasheet, Section 5.1 “Power Supplies” states that it is very important that the V_{DD} supply rail powers up before the V_{EE} supply rail and that if this does not happen then the Ag6400 controller chip may be damaged. The block diagram shown in Figure 2 gives an overview of how this can be avoided. When the (-45V to -57V isolated) supply is switched ON, the Voltage Converter generates the 3.3V rail. This rail controls a Switch that then connects V_{EE} IN to V_{EE} OUT, the results of this is that the Ag6400 always sees the V_{DD} (+3.3V) rail before the V_{EE} (-45V to -57V) rail.

The attached circuit shows a simple method of generating the +3.3V rail from the -45V to -57V supply and controls the power up sequence to the Ag6400.