



Application Note #1316

Failure of Amplifier Enable Circuit

Failure of the amplifier enable circuit (U21 on the DMC-1000 controller) is usually associated with excess current or voltage being applied to the Amplifier Enable output signal when an amplifier is connected directly to the controller (without using the ICM-1100 Interconnect Module which includes the 7407 or 7406 buffer).

The absolute maximum current rating for the IC chip (ACT273) that is used to output the amplifier enable signal from the controller is +/- 50mA; however, we recommend limiting the current to the continuous rated value of +/- 24mA. (Note: on older DMC-1000 controllers a 74ALS273 chip was used, which is rated at 24mA sinking and 1.2mA sourcing.)

If the amplifier draws too much current, this IC can fail. Excess current draw can occur for 2 reasons: the amplifier could experience a surge current that exceeds the rated maximum, or the circuit could overheat from supplying too much current on a continuous basis. Placing a resistor in series with the amplifier enable signal can provide some protection. This will limit the current being delivered. For example, at 5 Volts, a resistor of 500 Ohms would limit the source current to 10mA.

If the amplifier is causing an excessive voltage on the amplifier enable line, this can also be the source of problems. The IC can be protected from excessive voltage by placing diodes on the amplifier enable lines. One diode would be connected from the enable line to ground (with the anode to ground) and the other diode should be connected from the enable line to +5V (with the cathode to +5V).