



## AC Amplifier Troubleshooting

Most Fadal machining centers built after 1996 were designed with AC servos rather than the less reliable DC counterparts. The speed of both rapids and programmable feed rates increased with the increase of reliability of the encoder feedback system and inherent durability of AC servo motors which had already been implemented in many other machine tool brands.

Fadal first designed, with the help of Glentek, the 8192 line count amplifier with a part number of AMP-0029. They also partnered with AMC (Advanced Motion Control) to develop the AMP-0034 to second source the amp in case of supply shortages with Glentek. Both these amps have been superseded to the AMP-0040 made by Glentek. AMC discontinued the AMP-0034 product after Fadal Engineering decided to buy solely from Glentek at some point in time after.

On many of the mid 90's Fadal VMC 3016's as well as select 4020 models, they went to the 5000 line count amplifier due to changes in ballscrew pitch and rapid rates but only for a limited time frame. These required the AMP-0039 Glentek version of the AMP-0040. Similar power, similar reliability, similar accuracy, just a 5000 line count input rather than 8192. FadalCNC.com stocks them all, both new and remanufactured.

A very helpful tool in troubleshooting AC amplifier faults is the ability to read and interpret the LED indicators on the front of the amp. You should also do a megger test on the power cables (not the encoder cable, you will ruin the encoder instantly), check the amplifier chassis input AC fuses, then decipher the LED indicators.

Here are documents which not only give you the road map to decoding the LED's but great theory about the AC servo system, operation and wiring diagram to assist in quickly determining your problem.

Here are the other procedures:

[AC Servo Operations-Troubleshooting](#)

[AC Amp Chassis Wiring Diagram](#)

[AC Servo System Theory](#)