

SUBJECT: Application Recommendations/Notes for Using Tach Rate Gain in the DSD-412 DC Elevator Drive

The Tach Rate Gain function (F# 107) is available for high performance elevator applications that exhibit problems with rope resonance characteristics. This function subtracts a portion of the speed feedback derivative from the output of the speed regulator. The Tach Rate Gain parameter selects a unitless gain factor that determines how much of the derivative is subtracted.

Some useful application notes;

1. A properly adjusted typical elevator application probably will not need this function implemented.
2. Tach Rate Gain should be adjusted only after inertia (F# 41) and response (F# 40) have been set correctly.
3. If Tach Rate Gain is set too high, the elevator ride will be “jittery”. The car may miss the floor.
4. Magnetek’s experience has shown that a little goes a long way. Start with 0.1 %. Keep in mind that this function is not a cure for bad tach mounting.

Notes: One application where Tach Rate Gain was used was on a gearless, high speed elevator. The tach was picking up vibration from the elevator running in the adjacent hoistway. The DSD 412 (600 HP) was responding to this vibration causing a slightly “gritty” ride. 0.1 % was entered in the Tach Rate Gain Function. The “grittyness” in the ride was gone.

At another site, there was vibration coming into the floor towards the top of the hoistway. Entering 0.1% removed the vibration.