

MODEL 234 PRECISION AMPLIFIER

PART NUMBER 12M03-00121-01  
APPLICATION NOTES

1. Signal polarities are relative. If a positive Feed-back signal is used, then the Reference must be negative.
2. Initial stability settings are as follows:

Lead	50%
Lead Break	0%
Lag	50%
Lag Break	50%

Satisfactory performance is normally achieved when the peak-to-peak ripple on the output of the Summing Amplifier (terminal 5) is between 1 and 2 volts. The "Lead", "Lag" adjustments should be set as low as possible and the "Lag Break" set as high as possible consistent with satisfactory performance.

3. The Lead potentiometer is turned clockwise, if required, to prevent hunting or overshoot. Too much "Lead" signal will cause the drive to be sluggish to changes in the speed reference. However, it will improve response to changes in load.

Since the "Lead" circuit tends to inject noise into the circuit, the "Lead Break" is used to provide a high frequency cutoff to limit the noise. Too much "Lead Break" will nullify the effect of "Lead".

The Lag Network will filter out some of this noise and may have to be readjusted if the Lead Network adjustments are changed.

4. Increasing the "Lag" adjustment will make the drive sluggish. Decreasing it will allow the drive to overshoot or even operate in an unstable mode (hunting).

The gain and frequency response of the Summing Amplifier may be modified externally by turning the "Lag" potentiometer full CCW and adding an appropriate feedback network between terminals 2 and 5.

Speed accuracy of a closed loop feedback system depends on the accuracy of the tachometer generator used. Performance can generally be improved by using a type BC46 tachometer generator with its commutator rodmium plated.

As an alternate, a digital pulse generator with precision frequency to voltage converter can be used.

On systems with a long internal time constant (as with a DC Generator) an anti-overshoot network consisting of an appropriate resistor and capacitor in series can be connected between terminals 2 and 4.



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