

	<b>TIPS &amp; HINTS</b> <b>AC Drive Minimum Speed Setup</b>		Document Number: T&H0003	
	<b>Owner</b>	<b>Approval Date</b>	<b>Language</b>	<b>Page</b>
Bob Dampier	August 18, 2008	English	1 of 2	0

## Purpose

The purpose of this document is to describe the guideline to set a minimum speed for all current product AC Drives. “How do I set a minimum speed on an AC Drive?”

Reference your drive User’s Manual, parameter Group 20 Limits, Group 11 Reference Select and Group 99 Startup Data.

## Instruction

To make the drive Run at a minimum speed you need to set the limits in group 20 and in group 11. Note that changing minimum reference settings establishes a different proportionality between the level of the analog input and the frequency / speed to which it corresponds. For example, with a 60 Hz maximum reference and a 20 Hz minimum reference, an input reference of 5 volts will correspond to 40 Hz, not 30 Hz. Parameter 99.04 (Motor Control Mode) determines whether frequency or speed limits should be changed.

If 99.04 (Motor Control Mode) is set to Scalar then 20.07 Min Frequency sets the Lower frequency limit. Set this to the frequency you want to run as Minimum. You also need to change 11.04 (Ref1 min) to match what you set in 20.07. (If Ref2 is used then 11.07 (Ref2 min) should be set similarly.)

If 99.04 (Motor Control Mode) is set to Vector or DTC then 20.01 Min Speed sets the Lower Speed limit. Set this to the RPM you want to run as minimum. You also need to change 11.04 (Ref1 Min) to match what you set in 20.01. (If Ref2 is used then 11.07 (Ref2 min) should be set similarly.)

To calculate the RPM that corresponds to a desired minimum frequency utilize the following:

$$\begin{aligned} \text{Motor Nameplate RPM} &= \text{Base Speed} \\ \text{Motor Nameplate Frequency} &= \text{Base Freq} \\ \text{New Min Freq} &= \text{New Min Freq} \end{aligned}$$

$$\text{New Min Speed (rpm)} = \text{Base Speed} / \text{Base Freq} \times \text{New Min Freq}$$

Example:

Motor Nameplate RPM = 1750 rpm  
Motor Nameplate Frequency = 60 Hz  
New Min Freq = 15 Hz

New Min Speed (rpm) = 437.5 rpm = (1750 / 60) X 15

## Revisions

Rev.	Section	Description of Change	Modified By	Date
0		Initial Distribution	BD	18 Aug 2008