FOLLOW DIGITAL VELOCITY (BIPOLAR PWM COMMAND WITH VARIABLE TORQUE)

Available on
MCVC + MCPV

MODE DESCRIPTION

Control velocity and maximum torque independently and concurrently with this mode. Connect a digital PWM waveform from your PLC or other device to Input B, and ClearPath will run at a velocity proportional to the duty cycle of that waveform. Connect a separate digital or PWM signal to Input A to independently vary your motor's torque limit.

I/O FUNCTIONS

Enable Input - Asserting this input energizes the motor shaft.

Input A - This input is connected to a signal whose level or PWM duty cycle represents the desired torque limit.

Input B - This input is connected to a PWM signal whose duty cycle represents the desired velocity.

Output (HLFB) - See HLFB section for available modes.

Assert the Enable Input to energize the motor.

Velocity Control (Input B). Motor velocity is controlled by sending a PWM signal to Input B. Velocity is commanded as follows:

- Shaft velocity increases in the CW direction as PWM duty cycle decreases from 50% to 0%.
- Shaft velocity increases in the CCW direction as PWM duty cycle increases from 50% to 100%.
- As PWM duty cycle approaches 50%—from either side—motor velocity approaches 0.
- In practice, O% and 100% (static low and static high conditions) are not valid PWM states. ClearPath treats these cases as zero-velocity commands.
- All changes in velocity occur at the user-defined acceleration rate.
- Set a PWM deadband to help reliably command zero velocity.
- PWM minimum on time and minimum off time = 300nS.

Torque Limit Control (Input A). Vary your motor's maximum torque between the "standard" Torque Limits and the Alternate Torque Limits using either digital or PWM control methods.

For **digital torque limit control**, toggle between the Torque Limits and Alternate Torque Limits by changing the state of Input A as follows:

- Deassert input A to operate using purely the "standard" Torque Limits.

- Assert input A to operate using purely the Alternate Torque Limits.

For **PWM torque limit control**, you can vary the active torque limit linearly between the two torque limit settings by varying the PWM duty cycle sent to Input A as follows:

- Apply a 0% duty cycle (static low) to operate using purely the "standard" Torque Limits.
- Apply a 100% duty cycle (static high) to operate using purely the Alternative Torque Limits.
- Apply a duty cycle anywhere in between 0% and 100% to create a linear combination of the two limits.

Additional Notes:

- PWM input frequency range: 20 Hz up to 30 kHz.
- If the PWM signal is off for 50mS or more the PWM input is considered off.
- Disable time = 10 mS.

MODE CONTROLS