

Application Note

AN-VTC-02

Setting up the acceleration and deceleration ramp times

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- **General:**

Optidrive VTC provides parameters to independently adjust the acceleration and deceleration ramp times of the motor. The user can manually adjust these parameters according to the application requirement.

- **Parameters:**

P1- 03 Acceleration ramp time

This parameter specifies the time taken for the drives output speed to increase from 0Hz to the base frequency defined in P1-09. This effectively sets the rate of change of speed during acceleration.

Too small value in this parameter may cause an over current trip during speed acceleration.

P1- 04 Deceleration ramp time

This parameter specifies the time taken for the drives output speed to decrease from the drives base frequency (P1-09) to zero. This effectively sets the rate of change of speed during normal deceleration.

If the user sets this parameter to zero, then the drive will automatically decelerate the motor as fast as possible without tripping of over voltage when the stop command is applied.

Too small a value in this parameter may cause the over voltage trip during speed deceleration.

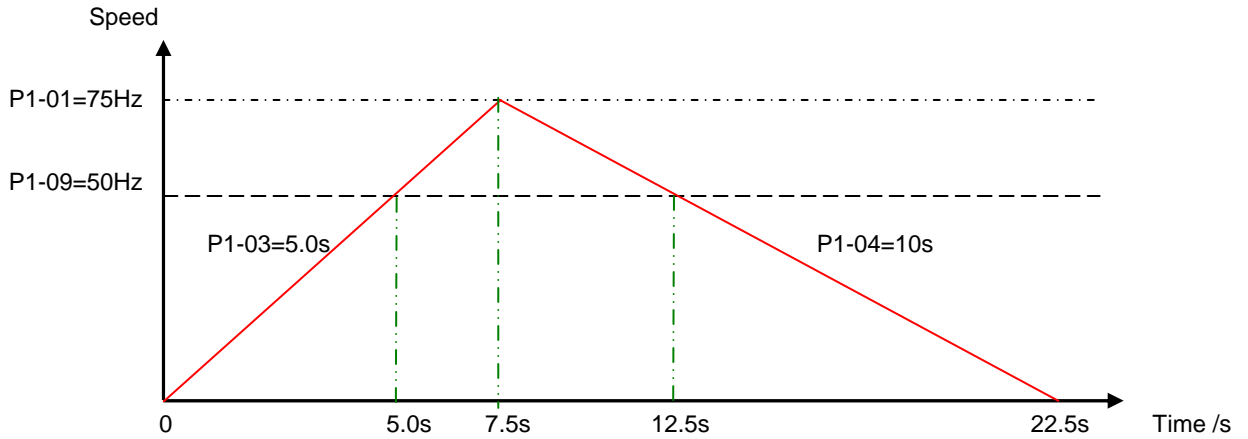
P2- 25 Second Deceleration ramp time

This parameter also specifies the time taken for the drives output speed to decrease from the drives base frequency (P1-09) to zero, but is only effective when selected either via the drive digital inputs or by a mains loss condition when P1-05 = 2. See table 5.5 in the User Guide for more information about the digital input functions.

If the user sets the deceleration ramp time to zero, then the drive will automatically control the motor to stop at a very fast ramp rate without tripping the drive on over voltage. This

function suits for those applications where the motor has a big inertia and is required to stop as soon as possible without any trip happening.

Note that if the drives speed reference is larger than the drives base frequency, then it will take longer for the motor speed to increase from zero to the target speed or to decrease to zero speed than the time that set in parameters P1-03 and P1-04. See diagram below:



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