



# Optidrive Applications Support Library

<b>Application Note</b>	<b>AN-ODV-2-002</b>
<b>Title</b>	<b>Setting up Acceleration and Deceleration Ramp Rates</b>
<b>Related Products</b>	<b>Optidrive HVAC</b>
<b>Level</b> <b>1</b>	1 – Fundamental - No previous experience necessary 2 – Basic – Some Basic drives knowledge recommended 3 – Advanced – Some Basic drives knowledge required 4 – Expert – Good experience in topic of subject matter recommended

## Overview

Optidrive HVAC 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 requirements.



**Note that ramp rates should be set with caution: The equipment being operated by the motor must be capable of performing the programmed ramp rates without damage or degradation of the mechanical / moving parts.**

## Parameters

### P1- 03 Acceleration ramp time

This parameter specifies the time taken for the Optidrive HVAC output frequency to increase from 0.0Hz to the motor base frequency programmed in P1-09. This effectively sets the rate of change of speed during acceleration.

Note that, due to ramp rates being specified as a time from 0 to base speed the smaller the value set the faster the resultant 'ramp rate'. Using too small a value in this parameter may cause an over current trip during acceleration or cause damage to the connected load of the motor.

### P1- 04 Deceleration ramp time

This parameter specifies the time taken for the Optidrive HVAC output frequency to decrease from the motor base frequency programmed in P1-09 to 0.0Hz. This effectively sets the rate of change of speed during normal deceleration.

If this parameter is set to zero the Optidrive will automatically decelerate the motor at the fastest rate possible without causing an over voltage trip whenever a stop command is applied.

Note that, due to ramp rates being specified as a time from 0 to base speed the smaller the value set the faster the resultant 'ramp rate'. Using too small a value in this parameter may cause an over current trip during acceleration or cause damage to the connected load of the motor.

### P2- 25 Second Deceleration ramp time

This parameter also specifies the time taken for the Optidrive output frequency to decrease from the motor base frequency programmed in P1-09 to 0.0 speed, but is only effective (replaces the standard deceleration ramp P1-04) when purposely selected by digital input or if there is a mains power loss condition.

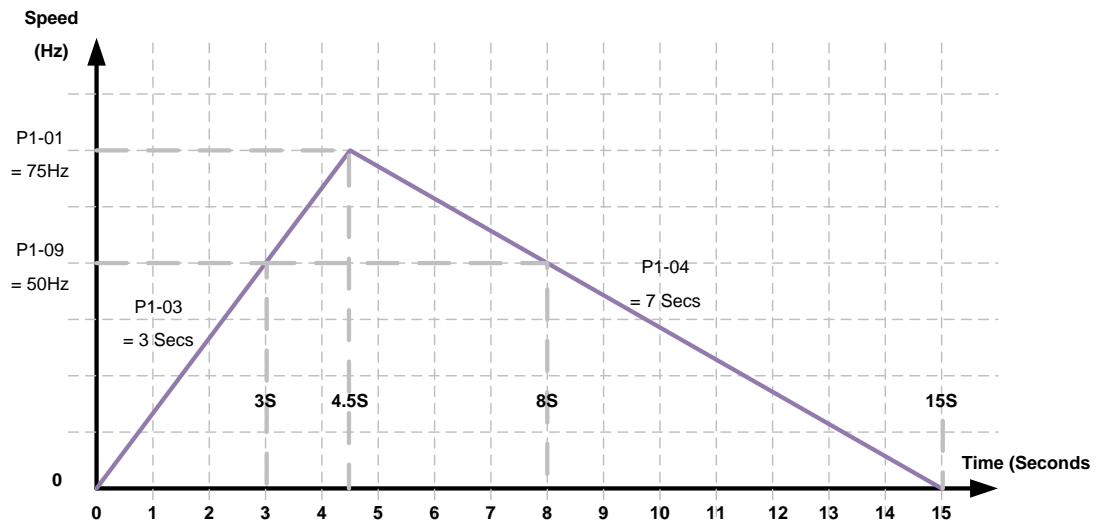
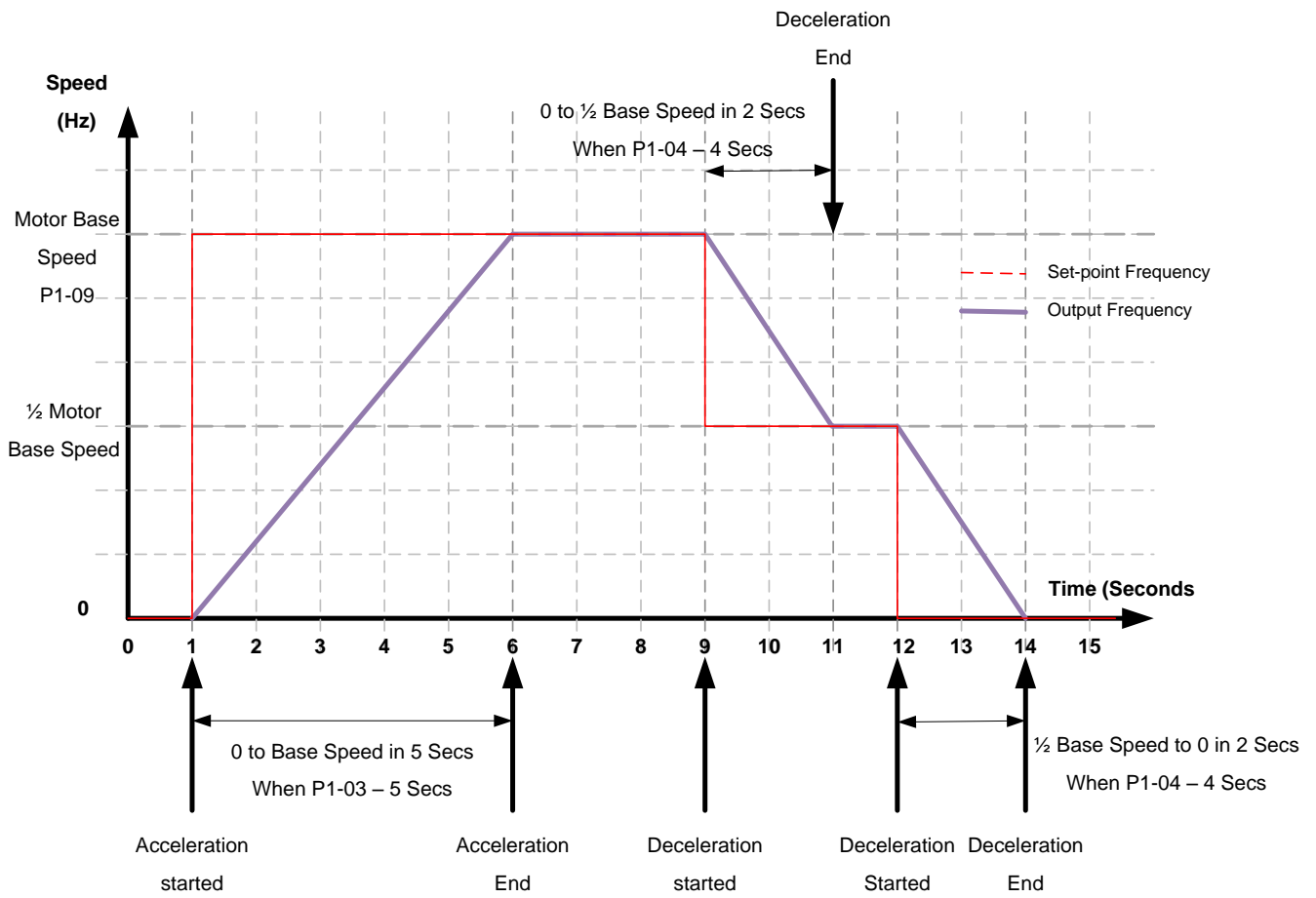
Selection of the fast deceleration ramp can only be done via the digital inputs and has to be configured manually using menu 9 (P9-02 Fast Stop Input Source).

If P-24 is set to zero, the Optidrive will coast to stop when decelerating using the fast ramp.

## Additional Notes

If the Optidrive output frequency is above the motor base frequency, the time required reaching the target speed, or to stop the drive from its current speed will be longer than the ramp times set in parameters P1-03 and P1-04.

See the diagrams below for further illustration.



## Appendix

Revision History			
Issue	Comments	Author	Date
01	Document Creation	JP	08/02/12
02	Updated to new format	KB	24/04/14