# Optidrive Applications Support Library

| Application Note | AN-ODE-3-002 |
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| **Title** | **Setting Up Acceleration and Deceleration Ramp Rates** |
| **Related Products** | **Optidrive E3** |
| **Level**<br>**1** | 1 – Fundamental - No previous experience necessary<br>2 – Basic – Some Basic drives knowledge recommended<br>3 – Advanced – Some Basic drives knowledge required<br>4 – Expert – Good experience in topic of subject matter recommended |

## Overview

A key advantage of using Optidrive E3 is that it provides parameters to independently adjust the acceleration and deceleration ramp times of the motor. This provides smoother starting and stopping of the motor, which reduces peak current load and mechanical wear on the connected machine. The parameters can be set 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.** |
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## Parameters

### P -03    Acceleration ramp time

This parameter specifies the time taken for the Optidrive E3 output frequency to increase from 0.0Hz to the motor base frequency programmed in P-09. The time entered in the parameter is in seconds.

Note that the time entered relates to the motor rated frequency. This means that if the rated frequency is 50Hz, the time taken to accelerate from standstill to 25Hz is half the value of P-03.

### P -04    Deceleration ramp time

This parameter specifies the time taken for the Optidrive E2 output frequency to decrease from the motor base frequency programmed in P-09 to 0.0Hz, in seconds.

If P-04 is set to zero, the Optidrive will use the ramp rate set in P-24 (fast ramp) to decelerate the drive.

### P- 24    Second Deceleration ramp time ("Fast Stop")

Optidrive E3 includes an additional deceleration time. This parameter becomes active when P-04 is set to zero. In addition, it may be selected from digital inputs, or in the event of loss of the mains power supply. This can be useful where, for example, the machine should stop more quickly in some cases than others. This feature is described more fully in other Application Notes.

As with P-04, the value entered is in seconds, and is the time taken for the Optidrive output frequency to decrease from the motor base frequency programmed in P-09 to 0.0 speed.

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

## Additional Notes

Note that if the Optidrive output frequency is above the motor rated 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 P-03 and P-04.

**Appendix:**

| Revision History | | | |
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| Issue | Comments | Author | Date |
| 01 | Document Creation | KB | 19/08/15 |
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