Technical instruction
ACS250 micro drives, 110-480 V
Setting up acceleration and deceleration ramp times

Overview

ACS250 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

2202 Acceleration ramp time

This parameter specifies the time taken for the ACS250 output frequency to increase from 0.0 Hz to the motor base frequency programmed in 9907. 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 overcurrent trip during acceleration or cause damage to the connected load of the motor.

2203 Deceleration ramp time

This parameter specifies the time taken for the ACS250 output frequency to decrease from the motor base frequency programmed in 9907 to 0.0 Hz. This effectively sets the rate of change of speed during normal deceleration.

If 2203 is set to zero, the ACS250 will use the ramp rate set in 2206 (fast ramp) to decelerate the drive.

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

Power and productivity
for a better world™

ABB

2206 Second deceleration ramp time

This parameter also specifies the time taken for the ACS250 output frequency to decrease from the motor base frequency programmed in 9907 to 0.0 speed, but is only effective (replaces the standard deceleration ramp 2203) when purposely selected. Selection of the fast deceleration ramp can be done via the digital inputs or by selection of this behavior in response to a mains loss condition (set in parameter 2102).

To select fast ramp to stop relating to a mains loss condition set parameter 2102=2.

See the 'Application macros' tables in the ACS250 user's manual for more information about the digital input functions.

If 2206 is set to zero, the ACS250 will coast to stop when decelerating using the fast ramp.

Additional notes

Note that if the ACS250 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 2202 and 2203.

See the diagrams below for further illustration.
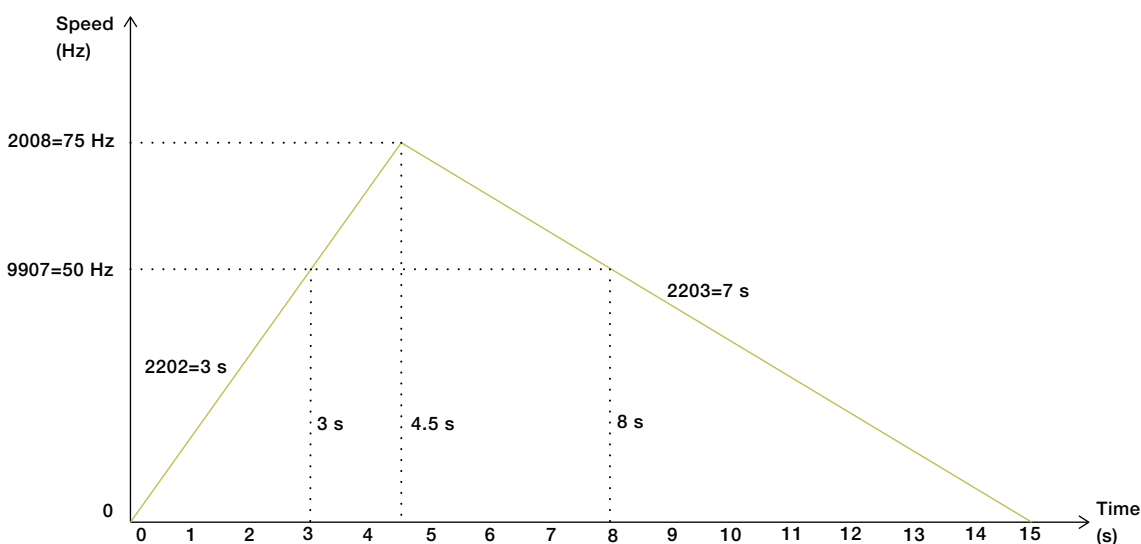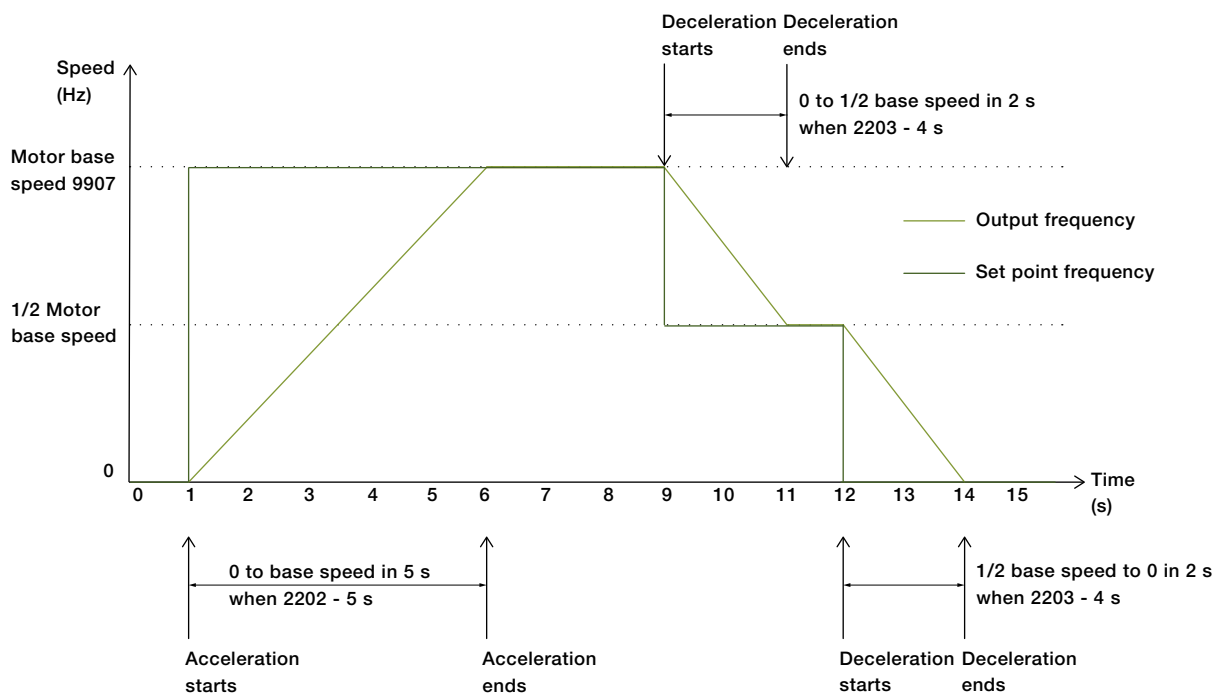
For more information please contact your local ABB representative or visit:

www.abb.com/drives

Power and productivity
for a better world™

ABB