

If you want the machine in Auto Mode to reach its programmed target positions with as high precision as possible, there are a few things you should know. There are three (five with +/-) parameter settings that affect this. Retardation (deceleration), Low Speed Distance +/-, and Stop Distance +/-.

Retardation (deceleration)

When the controller decides to stop a movement, it decelerates smoothly down to the low speed. The setting Retardation controls how soft it slows down. Here one must be aware that too soft deceleration approaching 0.5 seconds in time makes the safety circuit trigger the emergency stop if you release the pedal before the machine reaches the target. If you want a longer deceleration, the pedal must be held down throughout the movement. If you release the pedal, the machine is guaranteed to stop after a maximum of 0.5 seconds. One should preferably set the deceleration so that you can release the pedal at any time. When you then press the pedal again, the machine continues the auto movement on to the target.

Higher value = faster deceleration.

The inverter drives own setting for deceleration must be set to the fastest possible. That also applies to the acceleration value.

Low Speed Distance

This value, specified separately for the + and - direction, must be large enough for the axis to run a bit at low speed just before reaching the target position. If you change to a longer deceleration this value must be increased. This setting is the position range (encoder pulses) before the target position where auto motion will start to decelerate down to low speed. Set too low will result in passing the target. A small low speed distance must be obtained to achieve consistent precision.

Higher value = results in longer low speed distance.

Stop Distance

Here you fine adjust by setting the position range before target where it will go to a full stop. Let's say that the target is passed with 10 in position value, then you should increase this setting by 10. And if it stops 10 before target, you decrease the setting by 10. Just make sure that it runs at low speed a bit first.

Higher value = Earlier stop.

This illustration makes it a bit clearer:

