*TechNOTE*

Title: Position Following Error Fault Delay on MultiFlex Motion Controllers
Products(s): All MultiFlex 1000 Series motion controllers
Keywords: MultiFlex, MCCL, Following Error
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Summary

MultiFlex 1000 series motion controllers provide greater control over the servo position following error fault state, allowing for better tuning and improved motor performance.

More Information

Controlling the servo position following error fault state can result in improved motor performance by filtering out events that are not of interest to the application. The figure below illustrates the behavior of the Position Following Error Time Delay feature of the MultiFlex controller.
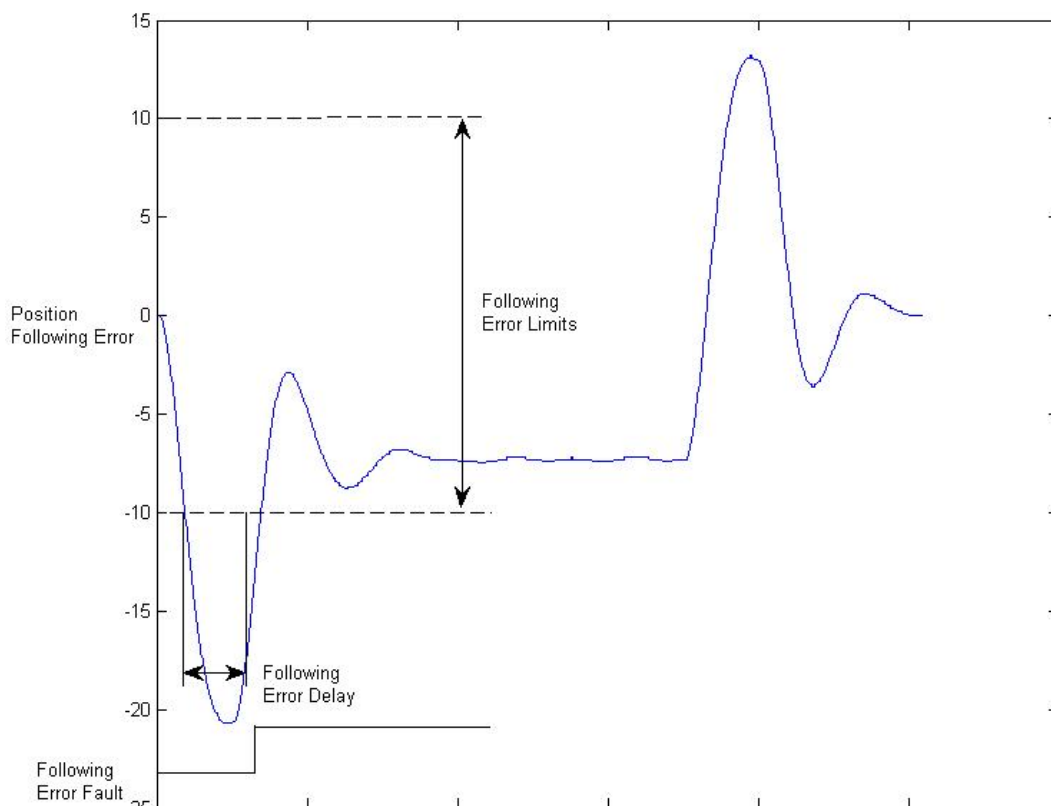
During rapid acceleration and deceleration, the error may easily exceed the desired maximum value and settle within it during constant velocity. In many applications, this is completely acceptable behavior.

In this example, the position following error maximum has been set to +/- 10 counts. During acceleration, the error value goes above 30 counts and then settles within the specified limit. Ordinarily, the excursion to 30 counts would trigger a following error fault on the axis if the limit is set to +/- 10 counts. To avoid this, either the limits can be relaxed or the Following Error Fault Delay feature of the MultiFlex controller can be utilized.

As shown in the figure, a fault delay of several mSec has been introduced to allow the axis to exceed the programmed limit. After this delay time has been exceeded, the Following Error Fault becomes active.

The Following Error Fault Delay can be specified by the following MCCL command

       aFXn   **a = axis number**
                          n = fault delay (mSec)

Through the use of this feature, more robust fault detection and improved axis tuning can be achieved by balancing the error limits and error time delay.