AEROTECH AUTOMATION1

Advanced Controller-Level Algorithms
Dynamic Controls Toolbox

Dynamic Controls Toolbox

Reject Disturbances · Quicker Moves · Settle Faster
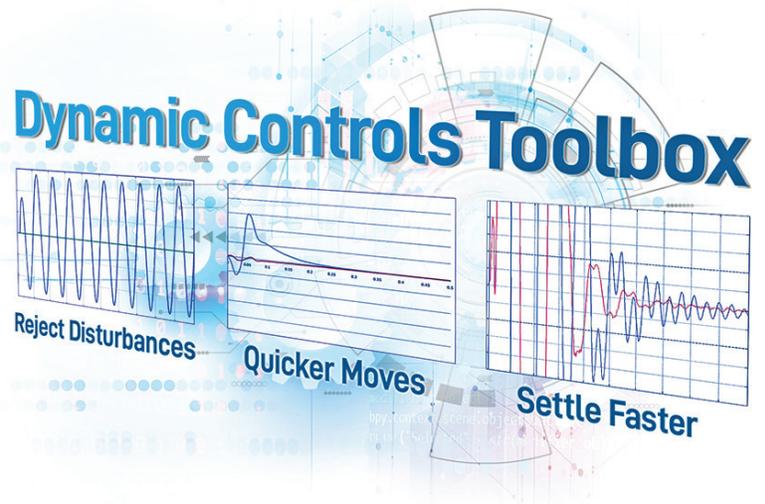
A Collection of Tools

The Dynamic Controls Toolbox (DCT) contains a collection of controller-level algorithms that are designed to improve machine positioning, increase throughput and reduce cycle times. Parameters supplied in the toolbox are used to configure these algorithms.

The DCT algorithm was developed based on years of experience in optimizing motion control systems. Apply DCT tools to your system today in order to achieve optimal performance.

Automation1

Automation1 Dynamic Controls Toolbox is part of the user-friendly Automation1 motion control platform, which includes the following:

- **Development Software**
- **Controls**
- **Motor Drives**
- **Fiber-Optic HyperWire® Communication Bus**

KEY FEATURES:

- Improves performance
- Reduces tracking error
- Rejects sinusoidal disturbances
- Filters undesired frequencies
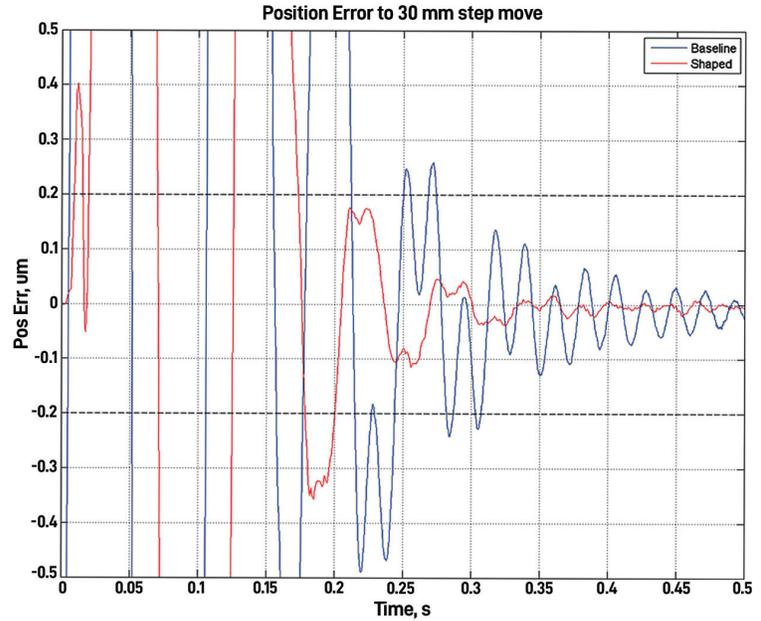- Minimizes off-axis position errors

HARMONIC CANCELLATION

Improves performance by reducing the tracking error to sinusoidal reference commands, motor force ripple or other position-dependent disturbances and to cross-axis disturbances such as those created in a linear axis by an unbalanced rotational axis.

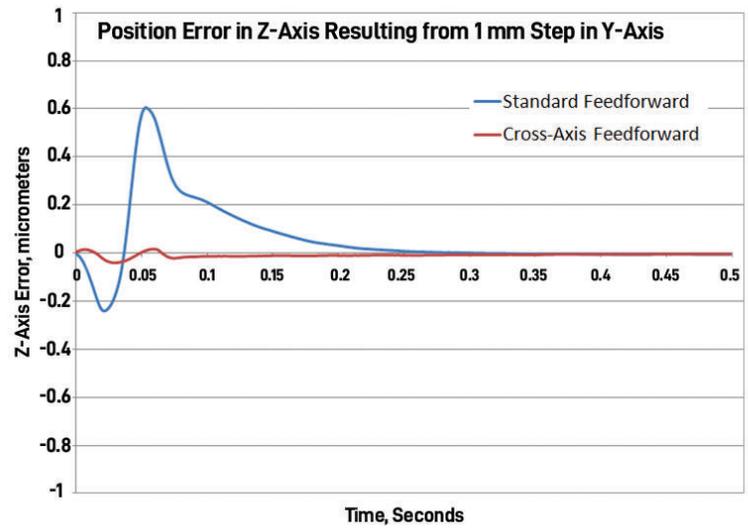**Tracking Error to 10 Hz Command at 1 mm, >60 dB reduction**
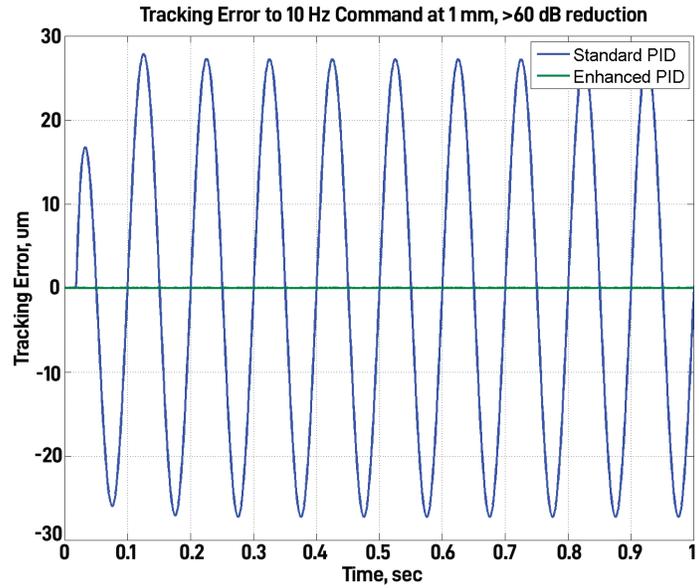
COMMAND SHAPING

Filters undesired frequencies from the commanded position, velocity and acceleration.

Position Error to 30 mm step move

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CROSS-AXIS FEEDFORWARD

Minimizes off-axis position errors by splitting the current generated by the feedforward gains between multiple motors on different axes.

Position Error in Z-Axis Resulting from 1 mm Step in Y-Axis

— Standard Feedforward
— Cross-Axis Feedforward

Z-Axis Error, micrometers

Time, Seconds

ORDERING THE AUTOMATION1 DYNAMIC CONTROLS TOOLBOX

Summary	Description
How to Order	Order the Dynamic Controls Toolbox as part of your Automation1-iSMC configuration.

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