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Position Loop Configuration Attributes

These are the position loop configuration attributes associated with a Motion Control Axis.

Velocity Feedforward Gain

Usage	Access	T	Data Type	Default	Min	Max	Semantics of Values
Required - P	Set		REAL	0	0	∞	%

The Velocity Feedforward Gain attribute multiplies the Velocity Feedforward Command signal to form the Velocity Feedforward Command that is applied to the velocity loop summing junction.

Position Loop Bandwidth

Usage	Access	T	Data Type	Default	Min	Max	Semantics of Values
Required - P	Set/SSV	T	REAL	100 FD	0	∞	Loop Bandwidth Units

The Position Loop Bandwidth attribute determines the proportional gain, Kpp, of the position loop that multiplies the Position Error signal. This value represents the unity gain bandwidth of the position loop beyond which the position loop is ineffective.

Position Integrator Bandwidth

Usage	Access	T	Data Type	Default	Min	Max	Semantics of Values
Required - P	Set/SSV	T	REAL	0 FD	0	∞	Loop Bandwidth Units

The Position Integrator Bandwidth attribute determines the position loop integral gain, Kpi, which together with the Kpp, multiplies the integrated Position Error signal. This value represents the bandwidth of the position integrator beyond which the integrator is ineffective. A value of 0 for this attribute disables the integrator.

Position Lock Tolerance

Usage	Access	T	Data Type	Default	Min	Max	Semantics of Values
Required - P	Set/SSV		REAL	0.01 FD	0	∞	Position Units

The Position Lock Tolerance attribute establishes a window around the current command position. When the actual position is within this window the Position Lock status bit is set. When actual position falls outside this window, the Position Lock status bit is cleared.

Position Error Tolerance

Usage	Access	T	Data Type	Default	Min	Max	Semantics of Values
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Required - P	Set/SSV		REAL	0 FD	0		Position Control Units
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The Position Error Tolerance attribute determines the absolute maximum Position Error value that can be tolerated without causing an Excessive Position Error exception.

Position Error Tolerance Time

Usage	Access	T	Data Type	Default	Min	Max	Semantics of Values
Optional - P	Set/SSV		REAL	0	0	10 ³	Sec

The Position Error Tolerance Time attribute determines the maximum amount of time that the Position Error Tolerance can be exceeded without generating an exception.

Position Lead Lag Filter Bandwidth

Usage	Access	T	Data Type	Default	Min	Max	Semantics of Values
Optional - P	Set/SSV		REAL	0	0	10 ⁴	Filter Frequency Units

The Position Lead Lag Filter Bandwidth attribute sets the pole frequency for the position regulator Lead-Lag Filter. A value of 0 disables the filter.

Position Lead Lag Filter Gain

Usage	Access	T	Data Type	Default	Min	Max	Semantics of Values
Optional - P	Set/SSV		REAL	0	0		

The Position Lead Lag Filter Gain attribute sets the high frequency gain of the position regulator Lead-Lag Filter. A value greater than 1 results in a lead function and value less than 1 results in a lag function. A value of 1 disables the filter.

Position Notch Filter Frequency

Usage	Access	T	Data Type	Default	Min	Max	Semantics of Values
Optional - P	Set/SSV		REAL	0	0	10 ⁴	Filter Frequency Units

The Position Notch Filter Frequency attribute controls the center frequency of the notch filter that is applied to the velocity reference signal of the velocity loop summing junction. A value of 0 for this attribute disables this feature.

Position Integrator Control

Usage	Access	T	Data Type	Default	Min	Max	Semantics of Values
Required - P	Set/SSV		BYTE	0 0:0 1:0	-	-	Bitmap 0 = Integrator Hold Enable (R) 1 = Auto-Preset (O) 2-7 = Reserved

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The Position Integrator Control attribute controls the behavior of the position loop integrator while commanding motion through the controller. When the integrator hold enable bit is set, the integrator is held while motion is being commanded with a non-zero velocity. When clear, the integrator runs without qualification. When the auto-preset bit is set, the integrator preload value is automatically loaded with the current velocity command when there is a control mode change between velocity control and position control. If clear, the integrator is loaded with the configured position integrator preload value.

Position Integrator Preload

Usage	Access	T	Data Type	Default	Min	Max	Semantics of Values
Optional - P	Set/SSV		REAL	0	0	∞	Velocity Units

The Position Integrator Preload attribute is a value assigned to the position integrator when the position control loop is enabled.

Position Limit - Positive

Usage	Access	T	Data Type	Default	Min	Max	Semantics of Values
Optional - E (Drive Scaling)	Set		REAL	-	-	-	Position Control Units

The Position Limit - Positive attribute is a value that defines the most positive position value. Exceeding the value while commanding motion in the positive direction generate a Position Overtravel Positive exception.

Position Limit - Negative

Usage	Access	T	Data Type	Default	Min	Max	Semantics of Values
Optional - E (Drive Scaling)	Set		REAL	-	-	-	Position Control Units

This value defines the most negative position feedback value that when exceeded while commanding motion in the negative direction, generates a Position Overtravel Negative exception.

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- [Position Control Mode](#)
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