

Inertia Test Result Attributes

These are the attributes that are associated with inertia result status applied to a Motion Control Axis.

Tune Status

Usage	Access	T	Data Type	Default	Min	Max	Semantics of Values
Required - C	Get/GSV		INT	-	-	-	Enumeration 0 = Tune Successful 1 = Tune in Progress 2 = Tune Aborted 3 = Tune Time-out Fault 4 = Tune Failed - Servo Fault 5 = Axis Reached Tuning Travel Limit 6 = Axis Polarity Set Incorrectly 7 = Tune Measurement Error 8 = Tune Configuration Error

The Tune Status attribute returns status of the last run Inertia Test service that initiates a process on the targeted drive axis. The Tune Status attribute can, thus, be used to determine when the Inertia Test initiated operation has successfully completed. Conditions may occur, however, that make it impossible for the drive to properly perform the operation. When this is the case, the Inertia Test process is automatically aborted and a failure reported that is stored in the Tune Status output parameter.

Tune Acceleration Time

Usage	Access	T	Data Type	Default	Min	Max	Semantics of Values
Required - C	Get/GSV		REAL	-	-	-	Seconds

The Tune Acceleration Time attribute returns acceleration time in seconds for the last successful Inertia Test service. This value is used to calculate the Tune Acceleration attribute.

Tune Deceleration Time

Usage	Access	T	Data Type	Default	Min	Max	Semantics of Values
Required - C	Get/GSV		REAL	-	-	-	Seconds

The Tune Deceleration Time attribute returns deceleration time in seconds of the last successful Inertia Test service. This value is used to calculate the Tune Deceleration attribute.

Tune Acceleration

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Tune Acceleration

Usage	Access	T	Data Type	Default	Min	Max	Semantics of Values
Required - C	Get/GSV		REAL	-	-	-	Position Units / Sec ²

The Tune Acceleration attribute returns the measured peak acceleration of the last successful Inertia Test service. This value is used to calculate the Tune Inertia Mass value of the axis, and is also used to determine the tuned values for the Maximum Acceleration attribute. The Tune Acceleration value represents the estimated acceleration at the configured torque limit of the system.

Tune Deceleration

Usage	Access	T	Data Type	Default	Min	Max	Semantics of Values
Required - C	Get/GSV		REAL	-	-	-	Position Units / Sec ²

The Tune Deceleration attribute returns the measured peak deceleration of the last successful Inertia Test service. This value is used to calculate the Tune Inertia Mass value of the axis, and is also used to determine the tuned values for the Maximum Deceleration attribute. The Tune Acceleration value represents the estimated deceleration at the configured torque limit of the system.

Tune Inertia Mass

Usage	Access	T	Data Type	Default	Min	Max	Semantics of Values
Required - C	Set/SSV		REAL	0	0	∞	% Motor Rated / (Motor Units/Sec ²)

The Tune Inertia Mass value represents the estimated inertia or mass for the axis as calculated from the measurements made during the last Motion Run Axis Tune (MRAT) initiated tuning process. This value may also be set directly by software tuning tools or programmatically.

Tune Friction

Usage	Access	T	Data Type	Default	Min	Max	Semantics of Values
Required - C	Set/SSV		REAL	0	0	∞	% Rated

This floating point value represents the amount of friction measured during the last successful Inertia Test profile. This value can be used to configure the Friction Compensation feature of the drive. This value may also be set directly by software tuning tools or programmatically.

Tune Load Offset

Usage	Access	T	Data Type	Default	Min	Max	Semantics of Values
Required - C	Set/SSV		REAL	0	$-\infty$	∞	% Rated

This floating point value represents the active load offset measured during the last successful Inertia Test profile. This value can be used to set the Torque Offset of the drive to cancel out the active load torque/force. This value may also be set directly by software tuning tools or programmatically.

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Load Inertia Ratio

Usage	Access	T	Data Type	Default	Min	Max	Semantics of Values
Required - C	Set/SSV		REAL	0	0	∞	Load Inertia / Motor Inertia

This floating point value represents the load ratio calculated by MRAT based on the measurements made during the last successful Inertia Test profile. The Load Inertia Ratio attribute's value represents the ratio of the load inertia to the motor inertia. Or in the case of a linear motor, the load mass over the motor mass. This value can be used to set the Load Ratio attribute value as part of an Autotune process. This value may also be set directly by software tuning tools or programmatically.

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