General Permanent Magnet Motor Attributes

These are the motor configuration attributes that apply to Permanent Magnet motor types in general.

PM Motor Resistance

Usage	Access	Data Type	Default	Min	Max	Semantics of Values
Required	Set/SSV*	REAL	0 DB	0	∞	Ohms

* *Indicates the attribute cannot be set while the drive power structure is enabled (Power Structure Enable bit in CIP Axis Status is true).*

The PM Motor Resistance attribute is a floating point value that specifies the phase-to-phase, resistance of a permanent magnet motor.

PM Motor Inductance

Usage	Access	Data Type	Default	Min	Max	Semantics of Values
Required (SPM Only)	Set/SSV*	REAL	0 DB	0	∞	Henries

* *Indicates the attribute cannot be set while the drive power structure is enabled (Power Structure Enable bit in CIP Axis Status is true).*

The PM Motor Inductance attribute is a floating point value that specifies the phase-to-phase, inductance of a permanent magnet motor.

PM Motor Flux Saturation

Usage	Access	Data Type	Default	Min	Max	Semantics of Values
Optional (SPM Only)	Set	REAL [8]	[100, 100, 100, 100, 100, 100, 100, 100] DB	0	100	% Nominal Inductance

The PM Motor Flux Saturation attribute is an array of floating point values that specify the amount of flux saturation in the motor as a function of current. The units for the nominal inductance values are percent, such that a value of 100% means no saturation, and 90% means the inductance is 90% of its value at zero current.

The first array entry specifies the flux saturation value at 12.5% of the Peak Current Rating; the second entry specifies the value at 25%, and so on up to the last entry, which specifies the value at 100% of the Peak Current Rating. (At zero current, the motor is assumed to have no saturation, for example, an implied value of 100%.)

PM Motor Lq Inductance

Usage	Access	Data Type	Default	Min	Max	Semantics of Values

Usage	Access	Data Type	Default	Min	Max	Semantics of Values
Required (IPM Only)	Set/SSV*	REAL	0 DB	0	∞	Henries

** Indicates the attribute cannot be set while the drive power structure is enabled (Power Structure Enable bit in CIP Axis Status is true).*

The PM Motor Lq Inductance attribute is a floating point value that specifies the phase-to-neutral, q-axis, inductance of an interior permanent magnet motor.

PM Motor Ld Inductance

Usage	Access	Data Type	Default	Min	Max	Semantics of Values
Required (IPM Only)	Set/SSV*	REAL	0 DB	0	∞	Henries

** Indicates the attribute cannot be set while the drive power structure is enabled (Power Structure Enable bit in CIP Axis Status is true).*

The PM Motor Ld Inductance attribute is a floating point value that specifies the phase-to-neutral, d-axis, inductance of an interior permanent magnet motor.

PM Motor Lq Flux Saturation

Usage	Access	Data Type	Default	Min	Max	Semantics of Values
Optional (IPM Only)	Set	REAL [8]	[100, 100, 100, 100, 100, 100, 100, 100] DB	0	100	% Nominal Inductance

The PM Motor Lq Flux Saturation attribute is an array of floating point values that specify the amount of q-axis flux saturation in the motor as a function of current. The units for q-axis flux saturation values are percent of Nominal Inductance, such that a value of 100% means no saturation, and 90% means the inductance is 90% of its value at zero current given by the PM Motor Lq Inductance attribute.

The first array entry specifies the flux saturation value at 25% of the Continuous Current Rating; the second entry specifies the value at 50%, and so on up to the last entry, which specifies the value at 200% of the Peak Current Rating. (At zero current, the motor is assumed to have no saturation, for example, an implied value of 100%.)

PM Motor Ld Flux Saturation

Usage	Access	Data Type	Default	Min	Max	Semantics of Values
Optional (IPM Only)	Set	REAL	100 DB	0	100	% Nominal Inductance

The PM Motor Lq Flux Saturation attribute is an array of floating point values that specify the amount of d-axis flux saturation in the motor at rated current. The units for d-axis flux saturation values are percent of Nominal Inductance, such that a value of 100% means no saturation, and 90% means the inductance is 90% of its value at zero current given by the PM Motor Ld Inductance attribute.

The PM Motor Ld Flux Saturation value specifies the d-axis saturation at 100% of the Continuous Current Rating.

PM Motor Extended Speed Permissive

Usage	Access	Data Type	Default	Min	Max	Semantics of Values
Optional - PVT (PM Only)	Set/SSV	USINT	0	0	1	Enumeration: 0 = False 1 = True

The PM Motor Extended Speed Permissive attribute value determines whether the speed of a PM motor is allowed to exceed the Bus Overvoltage Speed. Setting this value to True removes velocity limit protection against Bus Overvoltage conditions associated with Rotary and Linear PM motors. In this case it is critical that Bus Overvoltage protection be provided through a resistive brake module or DC bus regulation device to avoid drive damage.

Specifically, the PM Motor Extended Speed Permissive determines if the Bus Overvoltage Speed is applied to the velocity limiter function. The Bus Overvoltage Speed is only applied to the velocity limiter if the PM Motor Extended Speed Permissive is False.

The PM Motor Extended Speed Permissive value also determines the values of the Motor Overspeed Factory Limit and Motor Overspeed User Limit that provide overspeed protection. If the PM Motor Extended Speed Permissive is False, the Motor Overspeed Limits will be based on the Bus Overvoltage Speed. If the PM Motor Extended Speed Permissive is True, the Motor Overspeed Limits will be based on the Max Extended Speed value.

See also

General Motor Attributes

Induction Motor Attributes

Linear PM Motor Attributes

Motor Attributes Model

Rotary PM Motor Attributes

How are we doing?