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Exception Factory Limit Info Attributes

These are the exception limit related attributes associated with a Motion Control Axis. Exception Limit attributes define the conditions under which a corresponding exception is generated during motion axis operation that has the potential of generating either a fault or alarm. They are typically associated with temperature, current, and voltage conditions of the device that are continuous in nature. Factory Limits (FL) for exceptions are usually hard coded in the device and typically result in a major fault condition. User Limits (UL) for exceptions are configurable and typically used to generate a minor fault, or alarm condition. For this reason, the User Limits are generally set inside the corresponding Factory Limits. Note that the triggering of a User Limit exception does not preclude triggering of the corresponding Factory Limit exception; the two exception trigger conditions are totally independent of one another.

Rotary Motor Overspeed Factory Limit

Usage	Access	Data Type	Default	Min	Max	Semantics of Values
Optional - D	Get	REAL	-	-	-	RPM

Returns the Factory Limit for the Motor Overspeed Factory Limit exception based on a factory set value determined by the Rotary Motor Rated Speed or Rotary Motor Max Speed attribute values, or by operational speed limits enforced by the drive vendor. The drive may take the minimum of any of these values as the Factory Limit.

When PM Motor Rotary Bus Overvoltage Speed and PM Motor Rotary Max Extended Speed attributes are supported and non-zero, the drive uses these values to determine the Rotary Motor Overspeed Factory Limit. The PM Motor Extended Speed Permissive value determines which limit to apply. If the PM Motor Extended Speed Permissive is False, the Rotary Motor Overspeed Factory Limit will be based on the PM Motor Rotary Bus Overvoltage Speed. If the PM Motor Extended Speed Permissive is True, the Rotary Motor Overspeed Factory Limit will be based on the PM Motor Rotary Max Extended Speed value.

For Rockwell Automation drives, when PM Motor Extended Speed Permissive is False, the Motor Overspeed Factory Limit = 1.25 * Bus Overvoltage Speed, or the speed limit corresponding to the Bus Overvoltage Factory Limit, whichever is less. When PM Motor Extended Speed Permissive is True, the Motor Overspeed Factory Limit = 1.25 * Max Extended Speed value.

The Operational Speed Limit on all Rockwell Automation drive products is 600 Hz. The following formula is used to calculate the operational speed limit:

Operational Speed Limit (RPM) = 590 (Hz) * 120 / Rotary Motor Poles

Linear Motor Overspeed Factory Limit

Usage	Access	Data Type	Default	Min	Max	Semantics of Values
Optional - D	Get	REAL	-	-	-	m/s

Returns the Factory Limit for the Motor Overspeed Factory Limit exception based on a factory set value determined by the Linear Motor Rated Speed or Linear Motor Max Speed attribute values, or by operational speed limits enforced by the drive vendor. The drive may take the minimum of any of these values as the Factory Limit.

When PM Motor Linear Bus Overvoltage Speed and PM Motor Linear Max Extended Speed attributes are supported and non-zero, the drive uses these values to determine the Linear Motor Overspeed Factory Limit. The PM Motor Extended Speed Permissive

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the Linear Motor Overspeed Factory Limit. The PM Motor Extended Speed Permissive value determines which limit to apply. If the PM Motor Extended Speed Permissive is False, the Linear Motor Overspeed Factory Limit will be based on the PM Motor Linear Bus Overvoltage Speed. If the PM Motor Extended Speed Permissive is True, the Linear Motor Overspeed Factory Limit will be based on the PM Motor Linear Max Extended Speed value.

For Rockwell Automation drives, when PM Motor Extended Speed Permissive is False, the Motor Overspeed Factory Limit = 1.25 * Bus Overvoltage Speed, or the speed limit corresponding to the Bus Overvoltage Factory Limit, whichever is less. When PM Motor Extended Speed Permissive is True, the Motor Overspeed Factory Limit = 1.25 * Max Extended Speed value.

Motor Overtemperature Factory Limit

Usage	Access	Data Type	Default	Min	Max	Semantics of Values
Optional - D	Get	REAL	-	-	-	°C

The Motor Overtemperature Factory Limit attribute returns the Factory Limit for the Motor Overtemperature FL exception based on a factory set value related to the Motor Max Winding Temperature of the motor.

Motor Thermal Overload Factory Limit

Usage	Access	Data Type	Default	Min	Max	Semantics of Values
Optional - D	Get	REAL	-	-	-	% Motor Rated

The Motor Thermal Overload Factory Limit attribute returns the Factory Limit for the Motor Thermal Overload FL exception based on a factory set value related to the Motor Overload Limit rating.

Inverter Overtemperature Factory Limit

Usage	Access	Data Type	Default	Min	Max	Semantics of Values
Optional - D	Get	REAL	-	-	-	°C

The Inverter Overtemperature Factory Limit returns the Factory Limit for the Inverter Overtemperature FL exception.

Inverter Thermal Overload Factory Limit

Usage	Access	Data Type	Default	Min	Max	Semantics of Values
Optional - D	Get	REAL	-	-	-	% Inverter Rated

The Inverter Thermal Overload Factory Limit returns the Factory Limit for the Inverter Thermal Overload FL exception based on a factory set value related to the Inverter Overload Limit rating.

Converter Overtemperature Factory Limit

Usage	Access	Data Type	Default	Min	Max	Semantics of Values
Optional - BD	Get	REAL	-	-	-	°C

The Converter Overtemperature Factory Limit attribute returns the Factory Limit for the

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Converter Overtemperature FL exception.

Converter Thermal Overload Factory Limit

Usage	Access	Data Type	Default	Min	Max	Semantics of Values
Optional - BD	Get	REAL	-	-	-	% Converter Rated

The Converter Thermal Overload Factory Limit returns the Factory Limit for the Converter Thermal Overload FL exception.

Converter Ground Current Factory Limit

Usage	Access	Data Type	Default	Min	Max	Semantics of Values
Optional - BD	Get	REAL	-	-	-	Amps

The Converter Ground Current Factory Limit attribute returns the Factory Limit for the Converter Ground Current FL exception.

Bus Regulator Overtemperature Factory Limit

Usage	Access	Data Type	Default	Min	Max	Semantics of Values
Optional - BD	Get	REAL	-	-	-	°C

The Bus Regulator Overtemperature Factory Limit returns the Factory Limit for the Bus Regulator Overtemperature FL exception.

Bus Regulator Thermal Overload Factory Limit

Usage	Access	Data Type	Default	Min	Max	Semantics of Values
Optional - BD	Get	REAL	-	-	-	% Regulator Rated

The Bus Regulator Thermal Overload Factory Limit attribute returns the Factory Limit for the Bus Regulator Thermal Overload FL exception.

Bus Overvoltage Factory Limit

Usage	Access	Data Type	Default	Min	Max	Semantics of Values
Optional - BD	Get	REAL	-	-	-	Volts

The Bus Overvoltage Factory Limit returns the Factory Limit for the Bus Overvoltage FL exception.

Bus Undervoltage Factory Limit

Usage	Access	Data Type	Default	Min	Max	Semantics of Values
Optional - BD	Get	REAL	-	-	-	Volts

Returns the Factory Limit for the Bus Undervoltage FL exception.

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Feedback Noise Factory Limit

Usage	Access	Data Type	Default	Min	Max	Semantics of Values
Optional - E	Get	UDINT	-	-	-	Noise Counts

Feedback Signal Loss Factory Limit

Usage	Access	Data Type	Default	Min	Max	Semantics of Values
Optional - E	Get	REAL	-	-	-	% Nominal Voltage

The Feedback Signal Loss Factory limit attribute returns the Factory Limit for the Feedback Signal Loss FL exception.

Feedback Data Loss Factory Limit

Usage	Access	Data Type	Default	Min	Max	Semantics of Values
Optional - E	Get	UDINT	-	-	-	Consecutive Lost Data Packets

The Feedback Data Loss Factory Limit attribute returns the Factory Limit for the Feedback Data Loss FL exception.

Control Module Overtemperature Factory Limit

Usage	Access	Data Type	Default	Min	Max	Semantics of Values
Optional - All	Get	REAL	-	-	-	°C

The Control Module Overtemperature Factory Limit returns the Factory Limit for the Control Module Overtemperature FL exception.

Converter Pre-Charge Overload Factory Limit

Usage	Access	Data Type	Default	Min	Max	Semantics of Values
Optional - BD	Get	REAL	-	-	-	% Converter Rated

The Converter Pre-Charge Overload Factory Limit returns the Factory Limit for the Converter Pre-Charge Overload FL exception.

AC Line Overvoltage Factory Limit

Usage	Access	Data Type	Default	Min	Max	Semantics of Values
Optional - G	Get	REAL	-	-	-	% Rated

The AC Line Overvoltage Factory Limit attribute returns the factory set high voltage limit as a percent of Converter Rated Input Voltage for the AC line source.

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AC Line Undervoltage Factory Limit

Usage	Access	Data Type	Default	Min	Max	Semantics of Values
Optional - G	Get	REAL	-	-	-	% Rated

The AC Line Undervoltage Factory Limit attribute returns the factory set low voltage limit as a percent of Converter Rated Input Voltage for the AC line source.

AC Line Overvoltage Factory Limit - Alternate

Usage	Access	Data Type	Default	Min	Max	Semantics of Values
Optional - G	Get	REAL	-	-	-	% Rated

The AC Line Overvoltage Factory Limit -Alternate attribute returns the factory-set high voltage limit as a percent of Converter Rated Input Voltage for the alternate AC line source.

AC Line Undervoltage Factory Limit - Alternate

Usage	Access	Data Type	Default	Min	Max	Semantics of Values
Optional - G	Get	REAL	-	-	-	% Rated

The AC Line Undervoltage Factory Limit - Alternate returns the factory set low voltage limit as a percent of Converter Rated Input Voltage for the alternate AC line source.

AC Line High Freq Factory Limit

Usage	Access	Data Type	Default	Min	Max	Semantics of Values
Optional - G	Get	REAL	-	-	-	Hertz

The AC Line High Freq Factory Limit attribute returns the factory-set high frequency limit as the difference from the nominal AC line frequency.

AC Line Low Freq FactoryLimit

Usage	Access	Data Type	Default	Min	Max	Semantics of Values
Optional - G	Get	REAL	-	-	-	Hertz

The AC Line Low Freq Factory Limit attribute returns the factory set low frequency limit as the difference from the nominal AC line frequency.

AC Line High Freq Factory Limit - Alternate

Usage	Access	Data Type	Default	Min	Max	Semantics of Values
Optional - G	Get	REAL	-	-	-	Hertz

The AC Line High Freq Factory Limit - Alternate attribute Returns the factory set high frequency limit

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as the difference from the nominal alternate AC line source frequency.

AC Line Low Freq Factory Limit - Alternate

Usage	Access	Data Type	Default	Min	Max	Semantics of Values
Optional - G	Get	REAL	-	-	-	Hertz

Returns the factory set low frequency limit as the difference from the nominal alternate AC line source frequency.

Converter Heatsink Overtemp Factory Limit

Usage	Access	Data Type	Default	Min	Max	Semantics of Values
Optional - G	Get	REAL	-	-	-	°C

The Converter Heatsink Overtemp Factory Limit returns the Factory Limit for the regenerative converter power structure heatsink temperature. Exceeding this value generates a Converter Overtemperature FL exception.

AC Line Overload Factory Limit

Usage	Access	Data Type	Default	Min	Max	Semantics of Values
Optional - G	Get	REAL	-	-	-	% Converter Rated

The AC Line Overload Factory Limit attribute Returns the Factory Limit for Line 1, 2, and 3 components as a percent of their rated thermal capacity. Exceeding this value generates a Converter Thermal Overload FL exception.

AC Line Resonance Factory Limit

Usage	Access	Data Type	Default	Min	Max	Semantics of Values
Optional - G	Get	REAL	-	-	-	% Converter Rated

The AC Line Resonance Factory Limit attribute Returns the Factory Limit for the AC Line Resonance FL exception as a percentage of the Converter Output Rated Current. The AC Line Resonance FL exception occurs when the current flowing through the AC line filter in the resonant frequency band, exceeds the factory limit for vendor specified period.

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