Peak Enhancement Specifications

Drives that support the Peak-enhanced mode have the capability of increasing the maximum inverter peak current to achieve greater overload performance.

IMPORTANT The peak enhancement feature requires the use of RSLogix 5000® software or the Logix Designer application, and drive firmware as specified in Table 45.

Table 45 - Peak Enhancement Software and Firmware Requirements

IAM Module Cat. No.	AM Module Cat. No.	RSLogix 5000 Software Version	Kinetix 6000 Drive Firmware Revision
2094-BC01-MP5-S	2094-BMP5-S	16 or later	1.111 or later
2094-BC01-M01-S	2094-BM01-S	16 or later	1.111 or later
2094-BC02-M02-S	2094-BM02-S	16 or later	1.111 or later
2094-BC04-M03-S	2094-BM03-S	17 or later	1.117 or later
2094-BC07-M05-S	2094-BM05-S	17 or later	1.117 or later

Table 46 - Kinetix 6000 Inverter Peak Overload Support

Kinetix 6000 Drives Cat. No.	Module	Safe Torque-off Drive	Series A	Series B and C
2094-BC*xx*-M*xx*	IAM	Non Safe Torque-off	Standard	N/A
2094-BM*xx*	AM			
2094-BC*xx*-M*xx*-S	IAM	Safe Torque-off	Standard	Standard or Peak Enhanced (1)
2094-BM*xx*-S	AM			

(1) Standard mode is enabled by default to preserve backward compatibility, but you can enable the Peak-enhanced mode to achieve increased peak current performance.

Table 47 - Kinetix 6000 Peak Current Ratings

IAM/AM Module Cat. No.	Peak Inverter Current Rating		Peak Converter Current Rating	
	Standard	Peak Enhanced	Series A	Series B and C
2094-BC01-MP5-S	150%	250%	200%	250%
2094-BC01-M01-S	150%	250%	200%	250%
2094-BC02-M02-S	150%	250%	200%	250%
2094-BC04-M03-S	150%	250%	200%	250%
2094-BC07-M05-S	150%	200%	200%	300%
2094-BMP5-S	150%	250%	N/A	N/A
2094-BM01-S	150%	250%	N/A	N/A
2094-BM02-S	150%	250%	N/A	N/A
2094-BM03-S	150%	250%	N/A	N/A
2094-BM05-S	150%	200%	N/A	N/A

Figure 34 - Load Duty-cycle Profile Example

$$D = \frac{T_{PK}}{T} \times 100\%$$

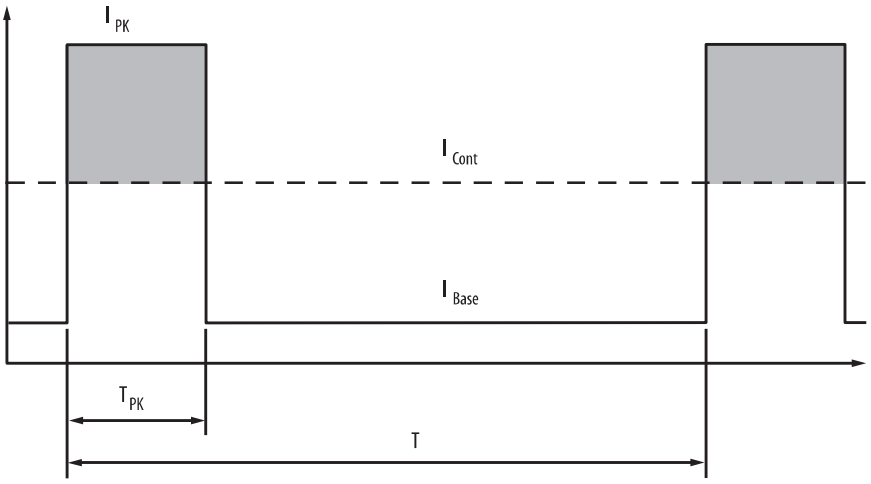
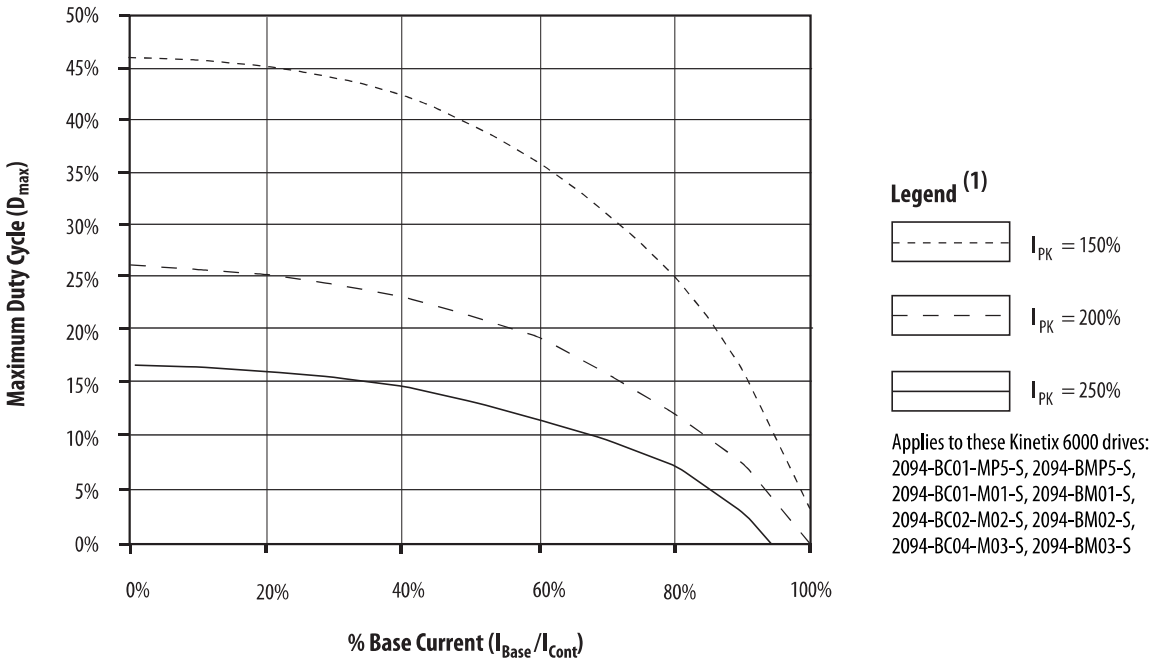


Table 48 - Peak Duty Cycle Definition of Terms

Term	Definition (1)
Continuous Current Rating (I_{Cont})	The maximum value of current that can be output continuously.
Peak Current Rating (I_{PKmax})	The maximum value of peak current that the drive can output. This rating is valid only for overload times less than T_{PKmax}.
Duty Cycle (D)	The ratio of time at peak to the Application Period and is defined as: $D = \frac{T_{PK}}{T} \times 100\%$
Time at Peak (T_{PK})	The time at peak current (I_{PK}) for a given loading profile. Must be less than or equal to T_{PKmax}.
Peak Current (I_{PK})	The level of peak current for a given loading profile. I_{PK} must be less than or equal to the Peak Current Rating (T_{PKMAX}) of the drive.
Base Current (I_{Base})	The level of current between the pulses of peak current for a given loading profile. I_{Base} must be less than or equal to the continuous current rating (I_{Cont}) of the drive.
Loading Profile	The loading profile is comprised of I_{PK}, I_{Base}, T_{PK}, and D (or T) values and completely specify the operation of the drive in an overload situation. These values are collectively defined as the Loading Profile of the drive.
Application Period (T)	The sum of the times at I_{PK} (T_{PK}) and I_{Base}.

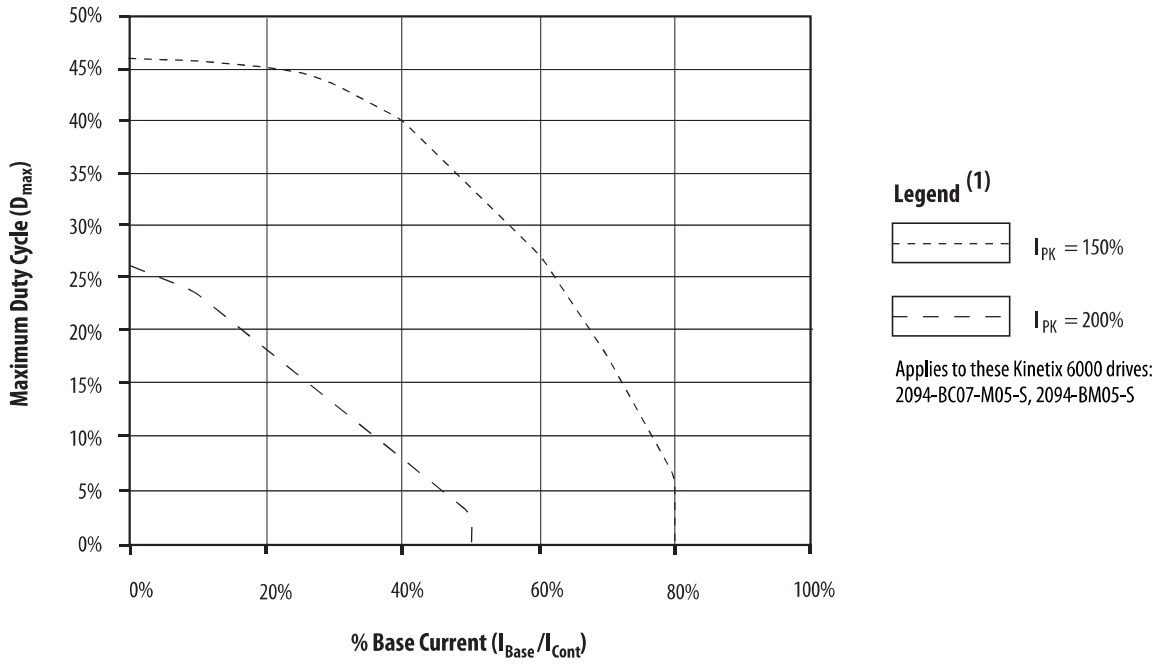
(1) All current values are specified as RMS.

Figure 35 - Peak Inverter Overload (T_{PK} < 2.0 s)



(1) Base current (I_{Base}) and peak current (I_{PK}) are a percentage of the continuous drive current rating (I_{Cont}).

Figure 36 - Peak Inverter Overload (T_{PK} < 2.0 s)



(1) Base current (I_{Base}) and peak current (I_{PK}) are a percentage of the continuous drive current rating (I_{Cont}).

Control Power

The IAM module requires AC input power for logic circuitry.

IMPORTANT The control power input requires an AC (EMC) line filter for CE certification. For filter examples, refer to Agency Compliance on page 22.

IMPORTANT 2094-BC*xx*-M*xx*-*x* (460V) IAM modules require a step down transformer for single-phase control power input. Source the 2094-AC*xx*-M*xx*-*x* (230V) IAM module control power from the three-phase input power (line-to-line) with neither leg bonded to ground or neutral potential. The National Electrical Code and local electrical codes take precedence over the values and methods provided. Implementation of these codes is the responsibility of the machine builder.

Table 49 - Control Power Input Power Specifications

Attribute	Value
Input voltage	95…264V AC rms, single-phase
Input power frequency	47…63 Hz
Control power AC input current Nom @ 220/230V AC rms Nom @ 110/115V AC rms Max inrush (0-pk)	 6 A 6 A 98 A (1)

(1) For eight axis systems with 230V AC control input voltage and 50 °C (122°F) ambient temperature the maximum inrush duration is less than 1/2 line cycle. Use this equation to calculate maximum inrush current for systems with different axis count and control input voltage.

$$I_{PK} = 0.043 \times (V_{IN}) + 6.72 \times (\#\ of\ axes) + 0.000333 \times (V_{IN}^2) - 0.816 \times (\#\ of\ axes)^2 + 0.0358 \times (\#\ of\ axes \times V_{IN})$$

Table 50 - Control Power Current Requirements

Modules on Power Rail	110/115V AC Input		220/230V AC Input	
	Input Current A	**Input VA** VA	**Input Current** A	**Input VA** VA
IAM module only	0.56	67	0.36	85
IAM and 1 AM module	0.99	119	0.64	153
IAM and 2 AM module	1.43	172	0.92	220
IAM and 3 AM module	1.87	224	1.20	287
IAM and 4 AM module	2.31	277	1.48	354
IAM and 5 AM module	2.74	329	1.75	421
IAM and 6 AM module	3.18	382	2.03	488
IAM and 7 AM module	3.62	434	2.31	555
IDM power interface module (IPIM)	For specifications and an example for calculating the IPIM module current requirements, refer to the Kinetix 6000M Integrated Drive-Motor User Manual, publication 2094-UM003.			

For Kinetix 6000M systems, calculate the sum of the control power current requirements for each IPIM module on the power rail and add that value with the appropriate value from Table 50 for the number of axes on the power rail.