

Group	Drives & Motors	Date	10/7/05
Series	B8000, B8500, B8900 & AKM23D(BK23)	Revised	01/29/2008
Element Group	Parameters	Revision	3
Element	Current	Author	Unknown
		# Of Pages	3

B8001 Motor File Current Parameters

Languages	Target Group	Status	Usage	International Restrictions
<input checked="" type="checkbox"/> English	<input type="checkbox"/> Basic	<input type="checkbox"/> In Process	<input type="checkbox"/> Internal	<input checked="" type="checkbox"/> U.S. Citizens
<input type="checkbox"/> German	<input checked="" type="checkbox"/> Normal	<input checked="" type="checkbox"/> Completed	<input checked="" type="checkbox"/> Public	Non-Restricted Countries, End
<input type="checkbox"/>	<input type="checkbox"/> Specialist			<input checked="" type="checkbox"/> Uses, and End Users (www.bis.doc.gov)

About the Content:

This application note lists the parameters that determine the drive and motor current between the BK23 (AKM23D) motor and the B8001, B8501, B8961 and B8962 drives. Also included are the three (3) parameters that determine the drive and motor current between all motors and the B8000 series.

Content

About the Content: 1

Content 1

General Operation Parameters 1

 Maximum Current..... 1

 Continuous Current..... 2

 Peak Current..... 2

BK23 Motor File Settings..... 2

General Operation Parameters

The following three (3) parameters apply to all motors and the B8001, B8501, B8961, and B8962 drives.

Maximum Current

The maximum current that the drive will produce is set with the parameter:

EEparam(40)=10. ;Drive Max Current (A)

With the max drive current set to 10A, the drive will produce 7.07A rms. All current settings in the B8001 are in peak current values. These must be converted to RMS values to compare to the rated current of the motor.

Continuous Current

The continuous motor current is set using the parameter:

EEparam(43)=50.007459 ;RMS limit (% of max torque)

Continuous motor current is set as a percentage of Drive Max Current (EEparam(40)). A setting of 50% will produce up to $10A * 50\% = 5A$ (3.54Arms). This is the current output from the drive to the motor for continuous operation.

Peak Current

The peak motor current is set using the parameter:

EEparam(1)=100. ; Torque Limit (% of max)

Peak motor current is set as a percentage of Drive Max Current (EEparam(40)). A setting of 100% will produce up to 10A (7.07A rms). The drive will only produce current greater than the continuous current setting for a short time, so as to not allow too much current flow through the motor windings. The parameter EEparam(42) sets the time in seconds that the current can remain above the continuous current setting. The B8001 usually uses EEparam(42)=2.97. When this time is exceeded, the drive will generate an Over Current fault and disable the motor power.

BK23 Motor File Settings

The original BK23 motor file for the B8001 is incorrect. The continuous current is set too high. The BK23 (AKM23D) is rated for 2.19A(rms) continuous and 8.8A(rms) peak current. The original BK23 motor file for the B8001 actually sets the continuous current to 3.5A(rms). All current in the B8001 is in peak current value rather than RMS current. The original BK23 file has the following settings:

EEparam(40)=10. ;Drive Max Current (A) ---Max Drive current set to 10A (7.07 A rms)

EEparam(43)=50.007459 ;RMS limit (% of max torque) ---Continuous Motor Current set to 50% of Peak Current = 50% or 10A = 5A (3.54Arms)

EEparam(1)=100. ;Torque Limit (% of max) ---Peak Motor Current set to 100% of Max Drive Current = 10A (7.07Arms)

EEparam(43) should be set to 30.9% to produce 3.09A (2.185A rms). The BK23 motor will produce more torque than the old B23 motor, unless it is damaged. Since the motor file is incorrect, this could have caused damage to the motor (burnt the windings), causing the motor to produce less torque. My recommendation is to measure the resistance of the three motor windings to see if they are damaged (8.36 +/-10%Ohm at 26 degrees C).

The B8000 series servo drives only use the Peak Motor Current range (current greater than the continuous motor current) for the amount of time defined by EEparam(42)=2.973951 ;100% Output*T Limit (seconds). This is set to 2.97 seconds so that the motor will only see current higher than the continuous rating for 2.97 seconds. If the current is higher than the continuous rating for more than this time, the life of the motor windings is reduced or possibly terminated. So, for continuous operation (100% Duty Cycle), the motor should only see current values up to the continuous rating (3.09A or 2.19A rms for the BK23 motor).