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**Resolver Based AKM Motors to CD Series Drives**

Languages	Target Group	Status	Usage	International Restrictions
<input checked="" type="checkbox"/> English	<input type="checkbox"/> Basic	<input checked="" type="checkbox"/> In Process	<input type="checkbox"/> Internal	<input checked="" type="checkbox"/> Citizens / Nationals of U.S.
<input type="checkbox"/> German	<input checked="" type="checkbox"/> Normal	<input 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 document explains how to compensate for the settings and offsets between the AKM motors and CD Series Drives. It covers the different phase nomenclature between the motors and drives as well as the MOTORTYPEs available and MPHASE values for MOTORTYPE 0.

**Content**

About the Content: ..... 1

Content ..... 1

Scope: ..... 2

Phase Nomenclature: ..... 2

MOTORTYPES: ..... 2

Setting MPHASE: ..... 3

**Scope:**

The motor position feedback devices used in the AKM Series motors are factory aligned to the motor per electro-mechanical standards. The alignment standards used in the AKM motor are different from the conventions for the ServoStar CD Series.



**The CD Series 2 is not recommended for use with the AKM motor series.** However, the resolver-based versions of the CD Series 2 will run with the resolver-based AKM motors.

**Phase Nomenclature:**

The CD Series motor phases are designated with the letters A, B, and C. The AKM motors are labeled U, V, and W. The relationship of these phase labels is shown in the following table.

AKM Nomenclature	CD Series Nomenclature
Phase U	Phase C
Phase V	Phase B
Phase W	Phase A

**MOTORTYPES:**

The CD Series drives have two MOTORTYPEs that are compatible with the AKM motors, MOTORTYPE 0 and 3.



CD Series 2 does not support MOTORTYPE 3

**MOTORTYPE=0** Does not compensate for the offsets in commutation angles due to the AKM motor alignment standards. MOTORTYPE=0 is available for use on all CD Series drives, however, the variable MPHASE must be set to accommodate for this difference.

**MOTORTYPE=3** Automatically compensates for offsets in commutation angles due to the AKM motor alignment standards. MOTORTYPE=3 was established with the release of the CD Series 5 drives and can only be used with the CD Series 5 and SynqNet drives.

**Setting MPHASE:**

If you find that you must use MOTORTYPE=0, the CD variable called 'MPHASE' must be set to accommodate for the resolver alignment position in the AKM motors. MPHASE is based on the number of pole-pairs in the motor. The following chart is provided as quick reference for MPHASE and is followed by the formula to find MPHASE.

MPHASE Settings For MOTORTYPE=0	
Number Of Pole Pairs	MPHASE
3	30
4	300
5	210
6	120

The number of pole pairs for the AKM motor is found on its data sheet.

$$\text{MPHASE} = 300 - 90 * (\text{Number of Pole-Pairs})$$

Should the resulting calculation be less than 0 (a negative result) keep adding 360 to the result until the answer is positive.

If MOTORTYPE is set to 3, MPHASE=0.