

同步伺服电机

磁偏角固定调整

Date: May 10, 2023

Project Number: AT-xx-xxxxx

We reserve the right to change the content of this manual without prior notice. The information contained herein is believed to be accurate as of the date of publication, however, B&R makes no warranty, expressed or implied, with regards to the products or the documentation contained within this document. B&R shall not be liable in the event if incidental or consequential damages in connection with or arising from the furnishing, performance or use of these products. The software names, hardware names and trademarks used in this document are registered by the respective companies.

I Versions

Version	Date	Comment	Edited by
1.0	Nov 6, 2006	First Edition	Chen.zhiping@br-automatio.com

Table 1: Versions

II Distribution

Name	Company, Department	Amount	Remarks

Table 2: Distribution

III Safety Notices

Safety notices in this document are organized as follows:

Safety notice	Description
Danger!	Disregarding the safety regulations and guidelines can be life-threatening.
Warning!	Disregarding the safety regulations and guidelines can result in severe injury or heavy damage to mate- rial.
Caution!	Disregarding the safety regulations and guidelines can result in injury or damage to material.
Information:	Important information used to prevent errors.

Table 3: Safety notices

IV Table of Contents

1 需求背景	4
2 接线	4
3 通电	4
4 调整编码器	4
5 固定编码器	4
6 总结	4
6.1 通过上述步骤后, 所有同型号电机将具有统一的磁偏角	4
6.2 用驱动器也可以给电机直流锁定转子	5
6.2.1 SPT 设置	5
6.2.2 MC_BR_TorqueControl 力矩输出	5
6.2.2.1 初始化部分	5
6.2.2.2 循环部分	5
6.2.2.3 操作步骤	6
7 Figure Index	7
8 Table Index	8
9 Listing Index	9
10 Index	10

1 需求背景

客户(湖南宇晶)希望将出厂磁偏角设定为固定值, 而不是随机值. 这样一旦 U/V/W 相序整体移动了 120 度, 也能立即发现问题。

2 接线

- 选用可设定电流输出的 DC 24V 开关电源.
- U接24V+
- V和W接OV



3 通电

- 通电电流为额定电流的 1/2 到 1/10 之间
- 开启 24V 电源;
- 手握住伸出轴,轻轻旋转一下,转子会自动移动到附近位置并锁定,该位置为电气0位;
- 电机一圈有极对数个电气0位(比如4对极有4个锁定位置)

4 调整编码器

- 调整编码器固定部分(一般是外壳),使某个标志点对应到电机端盖某固定点;

5 固定编码器

- 拧紧螺丝,把编码器外壳固定住.

6 总结

6.1 通过上述步骤后,所有同型号电机将具有统一的磁偏角.

- 用 AS 里面的 phasing 识别一下电机磁偏角;
- ID81=340, 把磁偏角写入电机编码器.

6.2 用驱动器也可以给电机直流锁定转子

注意:ACOPOS或 ACOPOSmulti 驱动器也可以输出设定电流的 DC 电压.

6.2.1 SPT 设置

	🚰 DC motor mode					7
20 - 20 - 20			MOTOR_TEST_MODE	866	4	Motor: Test mode
		۲	FUNCTION_BLOCK_CREATE	777	VAR_R4_1+0	Function block: Create a FB instance
		۲	VAR_R4_1+0	4136	-2.0944	FB0 FB VAR: Variable1 R4
		۲	VAR_R4_1+0	4136	2.0944	FB0 FB VAR: Variable1 R4
			VCTRL_USD_REF_PARID	845	0	CTRL Voltage controller: Parameter II
		۲	VCTRL_RHO_REF_PARID	847	VAR_R4_1+0	CTRL Vector controller: Parameter-ID
	I		PHASING_MODE	276	4	Motor: Phasing: Mode

6.2.2 MC_BR_TorqueControl 力矩输出

6.2.2.1 初始化部分

```
MC_BR_TorqueControl_0.Acceleration := BasicControl.Parameter.Acceleration;
MC_BR_TorqueControl_0.InitData;
MC_BR_TorqueControl_0.NegMaxVelocity:= -10000;
MC_BR_TorqueControl_0.PosMaxVelocity:= 10000;
MC_BR_TorqueControl_0.StartParID;
MC_BR_TorqueControl_0.StartSignal;
MC_BR_TorqueControl_0.TimeLimit;
MC_BR_TorqueControl_0.Torque := 0; //实际设置为电机额定电流的 1/10~1/20.
MC_BR_TorqueControl_0.Torque ParID;
MC_BR_TorqueControl_0.TorqueRamp;
MC_BR_TorqueControl_0.Mode := mcV_LIMIT_CALC;
MC_BR_TorqueControl_0.Enable;
```

old_Torque := MC_BR_TorqueControl_0.Torque;

6.2.2.2 循环部分

```
MC BR TorqueControl 0.Axis := Axis10bj;
MC BR TorqueControl 0();
IF (MC BR TorqueControl 0.WaitingForStart) AND (MC BR TorqueControl 0.Enable) THEN
      MC BR TorqueControl 0.StartSignal := TRUE;
ELSE
      MC BR TorqueControl 0.StartSignal := FALSE;
END IF
IF(old_Torque <> MC_BR_TorqueControl_0.Torque) THEN
      MC BR TorqueControl 0.InitData := TRUE;
      old_Torque := MC_BR_TorqueControl_0.Torque;
ELSE
      IF(MC_BR_TorqueControl_0.DataInitialized)THEN
            MC_BR_TorqueControl_0.InitData := FALSE;
      END IF
END IF
```

6.2.2.3 操作步骤

- 1) 导入 LibACP10MC_SingleAx_ST 例子任务
- 2) 加入上述初始化部分和循环部分,并把接口变量拉齐;
- 3) 下载项目;
- 4) Watch 例子程序"Basic";
- 5) BasicControl.command.power < 1;
- 6) BasicControl.command.home < 1;
- 7) MC_BR_TorqueControl_0.Enable ← 1;
- 8) MC_BR_TorqueCOntrol_0.Torque ← 10; //10=10Nm, 实际要设 Tn/10
- 9) 手摇晃一下电机伸出轴,伸出轴会移到一个未定位置并锁住,用手移开锁住位置,伸出轴会自动回位.
- 10) 现在可以把编码器外壳固定在指定位置, 一般在编码器外壳和电机后端盖找一个特殊唯一的位置对上.

(the end)

7 Figure Index

Es konnten keine Einträge für ein Abbildungsverzeichnis gefunden werden.

Table 1: Versions	2
Table 2: Distribution	2
Table 3: Safety notices	2

9 Listing Index

Es konnten keine Einträge für ein Abbildungsverzeichnis gefunden werden.

10 Index

	D
Distribution	2
	F
Figure Index	5
	I
Index Introduction	
	L
Listing Index	7

S
Safety Notices
т
Table Index
V
Versions 2