士林電機 Shihlin Electric

FA successful application

Case name	Shihlin SA3 on bridge crane					
Department	FA engineer group	date	2016-5-11	page		2
Product	SA3 series			code	ANI00007	

1. Introduction

An overhead crane, commonly called a bridge crane, is a type of crane found in industrial environments. An overhead crane consists of parallel runways with a traveling bridge spanning the gap. A hoist, the lifting component of a crane, travels along the bridge.

Photos:

2. Control method:

-Closed loop vector control, with PG card and encoder.

-We used our BKU-040-45K brake unit with 21.6KW/13.6Ω resistor

-We used a 37KW motor, but for this application we chose a larger capacity SA3-043-45K/55KF.

3. SA3 series advanced features:

-SVPWM software, V/F, sensorless vector control, closed loop control, torque control available.

-15 V/F control curve setting, built in separate V/F design to adapt different load.

-Strong load capacity, stall prevention can be set up to 400%.

-Sudden low voltage compensation, suitable in unstable power source.

-Various communication protocols - Modbus/ CanOpen /Ethernet/Device Net/Profibus.

-Built-in PLC function for programming process.

4. Wiring diagram
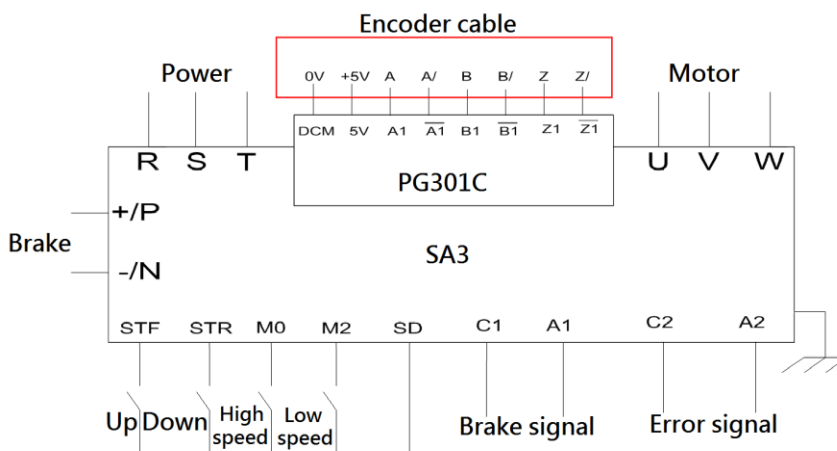
5. Parameters changed:

Number	Name	Setting range	Default value	Set value
P.1	Max frequency	0~120Hz	120Hz	50Hz
P.4	High speed	0~650Hz	60Hz	50Hz
P.6	Low speed	0~650Hz	10Hz	15
P.7	Acceleration time	0~360s/0~3600s	20s	3s
P.8	Deceleration time	0~360s/0~3600s	30s	2s
P.79	Operation mode	0~8	0	2
P.85	Terminal A1 B1 C1 function	0~21	5	2
P.130	Terminal A2 B2 C2 function	0~21	0	5
P.300	Motor control mode	0~6	0	4
P.301	Motor auto-tuning	0~4,8~10	0	2
P.302	Motor rated power	0~315.00KW	0.00KW	37KW
P.303	Motor poles	0~48	4	4
P.304	Motor rated voltage	0~440V	440V	380V
P.305	Motor rated frequency	0~650Hz	60Hz	50Hz
P.306	Motor rated current	0~500.00A	/	74A
P.307	Motor rated speed	0~65000r/min	1710rpm	1410rpm
P.350	Encoder pulse per round	0~20000 pulses	1024 pulses	1024 pulses
P.351	Encoder type	0~4	0	2
P.352	PG detect error time	0~100.0s	1.0s	0
P.354	Over speed limit time	0~100.0s	1.0s	0
P.281	Input phase loss protection	0 1	0	1