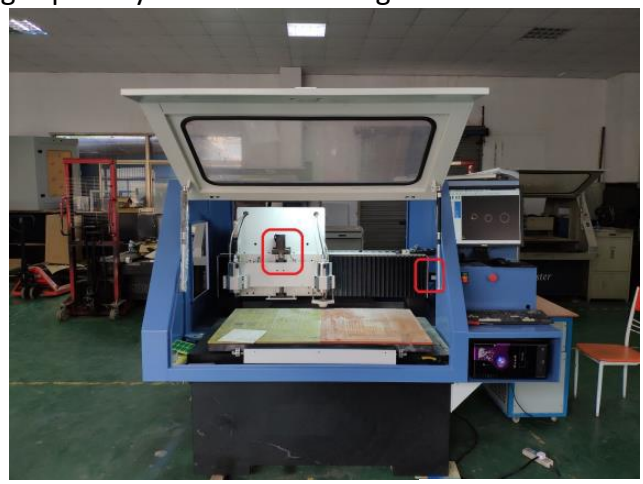
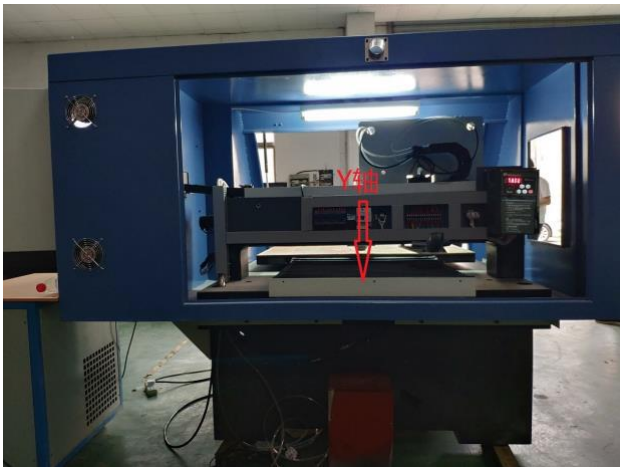
FA successful application

Case name	Shihlin SDE on drilling machine				
Department	FA engineering group	Date	2018-08-025	page	2
product	SDE series	code	ANI00022	Ver.	V1

1. Introduction

PCB drilling is a key process in the whole printed circuit board production. The PCB numerical control drilling machine is based on the technology, through the coordinated movement of the three coordinates of X, Y and Z, the X and Y axes are controlled to move quickly and accurately to the drilling position. The Z-axis actuator is drilled to achieve precision drilling. As the holes of the PCB is getting smaller and smaller, and the number of holes is increasing, the requirements for the micro-holes processing capability of the CNC drilling machine PCB are higher.





2. Requirements

- Servo drive high speed and high responsiveness
- XYZ three-axis excellent compatability;
- The motor responds quickly when commutating;
- The accuracy reaches the customer's requirement of 0.01mm;
- The servo should have excellent resonance suppression;

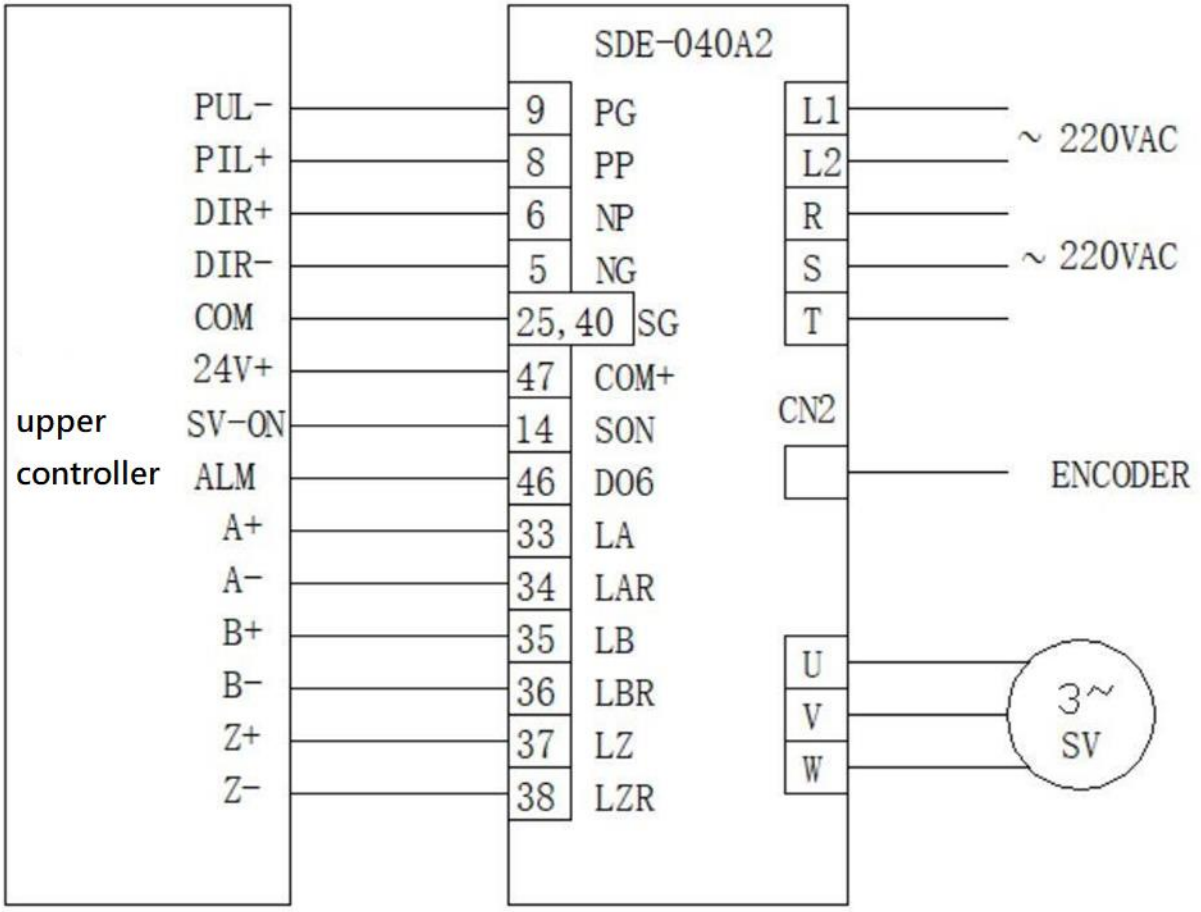
3. SDE series servo drive features

- Accurate and fast automatic load inertia estimation.

- Excellent speed response, greatly shortening the setting time up to 1ms, fast response, high response and positioning accuracy.
- High-resolution Encoder, 4,194,304 pulse wave with single-turn resolution, more accurate positioning, and effectively improve low-speed stability. With Japanese encoders.
- SDE high and low frequency resonance suppression.
- Motor miniaturization, motor wire direction can be selected.
- Complete servo tuning software for on-site engineers.
- Speed response bandwidth 1.2kHz, the minimum settling time is only 1ms.

4. Wiring diagram

X/Y/Z axis



5. Parameter

X axis

parameter	abbr	set value	default	unit
PA-02	ATUM	00000000	00000002	/
PA-03	ATUL	15	10	/
PA-06	CMX	4194304	1	/
PA-07	CDV	10000	1	/
PA-13	PLSS	00000200	00000000	/
PA-35	FNO1	00000001	00000000	/
PA-39	POL	00000001	00000000	/
PB-02	NHD1	8	0	dB
PB-03	NLP	7	10	0.1ms
PB-05	FFC	50	0	0.0001
PB-06	GD1	80	70	0.1 times
PB-07	PG1	105	45	rad/s
PB-08	VG1	332	183	rad/s
PB-09	VIC	18	34	ms
PB-22	NHD2	8	0	dB
PB-27	ANCF	00000000	00000001	/
PB-44	PPD	120	0	/
PB-49	DST	70	0	/
PD-01	DIA1	00001110	00000000	/

Y axis

parameter	abbr	set value	default	unit
PA-02	ATUM	00000000	00000002	/
PA-03	ATUL	20	10	/
PA-06	CMX	4194304	1	/
PA-07	CDV	10000	1	/
PA-11	RES2	500	20	Watt
PA-13	PLSS	00000210	00000000	/
PA-39	POL	00000001	00000000	/
PB-01	NHF1	849	1000	Hz
PB-02	NHD1	15	0	dB
PB-03	NLP	4	10	0.1ms
PB-05	FFC	30	0	0.0001
PB-06	GD1	60	70	0.1times
PB-07	PG1	105	45	rad/s
PB-08	VG1	374	183	rad/s
PB-09	VIC	8	34	ms
PB-22	NHD2	8	0	dB
PB-27	ANCF	00000000	00000001	/
PB-44	PPD	120	0	/
PB-49	DST	50	0	/
PD-01	DIA1	00001110	00000000	/

Z axis

parameter	abbr	set value	default	unit
PA-02	ATUM	00000000	00000002	/
PA-03	ATUL	17	10	/
PA-06	CMX	4194304	1	/
PA-07	CDV	10000	1	/
PA-13	PLSS	00000200	00000000	/
PA-39	POL	00000001	00000000	/
PB-03	NLP	6	10	0.1ms
PB-06	GD1	18	70	0.1times
PB-07	PG1	105	45	rad/s
PB-08	VG1	421	183	rad/s
PB-09	VIC	14	34	ms
PB-27	ANCF	00000000	00000001	/
PD-01	DIA1	00001110	00000000	/