User Manual

MPC03LV/LH

Rev. 1.0

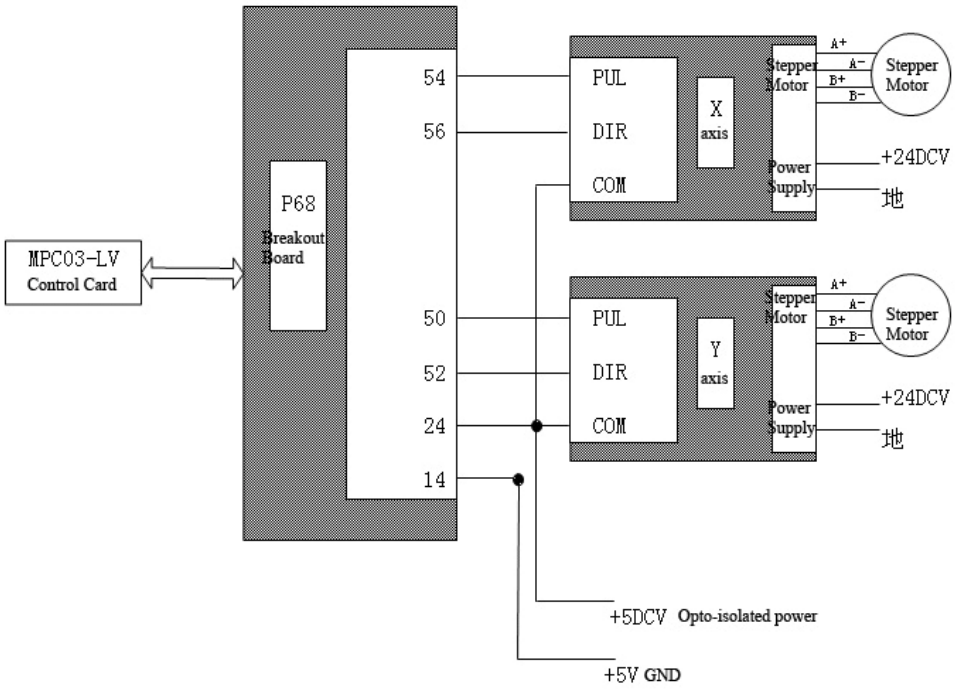
Table of Contents

1 Dual-axis Stepping System

1.1System Description

1. Hybrid 2-phase stepper motors+stepper motor drives;
2. Upper control unit: MPC03；
3. DC power supplies: 24DCV（10A），5DCV（1A）.

1.2Connection Diagram

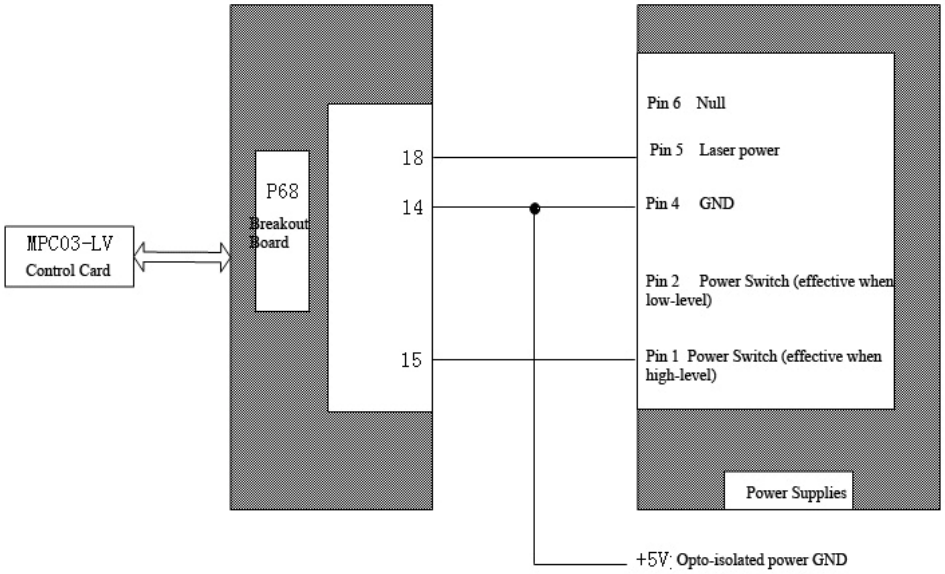


<u>Remark</u>: The connection of Z-axis is the same as the above；

2 Connect Motion Controller to Laser Power Supplies

2.1 Connection Diagram

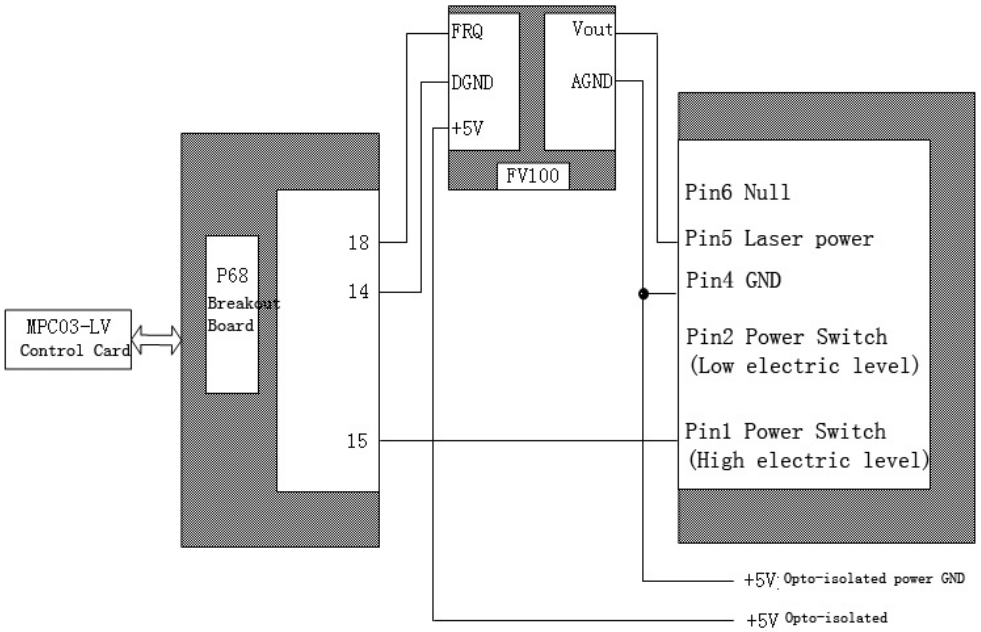
2.1.1 PWM Laser Power



Remark1: Pins descriptions of different power supplies will differs. Please confirm with your supplier before connecting.

Remark2:The diagram above describes the connection when signals are high-voltage effective. For low voltage effective signals, connect Pin15 of P68 to Pin2 of the power supply.

2.1.2 Laser power supply controlled by voltage-power



Remark1: Pins descriptions of different power supplies will differs, please confirm with your supplier before connecting.

Remark2: FV100 module is used to convert the pulse signals to analogue voltage signals;

Remark3:The diagram above describes the connection when signals are high-voltage effective. For low voltage level, you should connect Pin15 to Pin2 of the power supply.

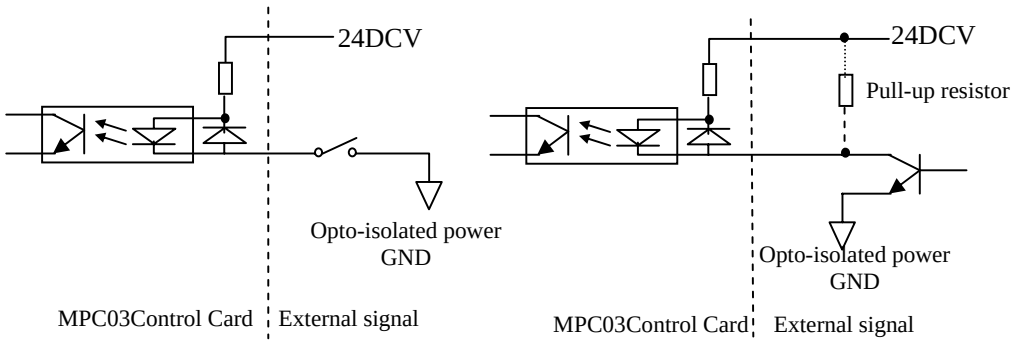
Remark4: P18 is FRQ pin for MPC03-LV, if you are using MPC03-LH, the corresponding pin should be P17.

3 Connection of MPC03

The digital inputs (limit, deceleration, home, and external alarm) of MPC03 control card can be contact switches and NPN-output proximity sensor switches. Refer to Fig 3.1.

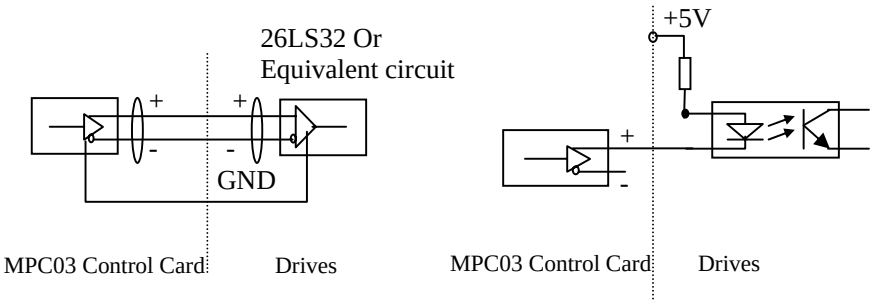
Fig 3.2 describes the connection of pulse+direction signals.

Fig 3.3 describes the connection of external encoder signals.



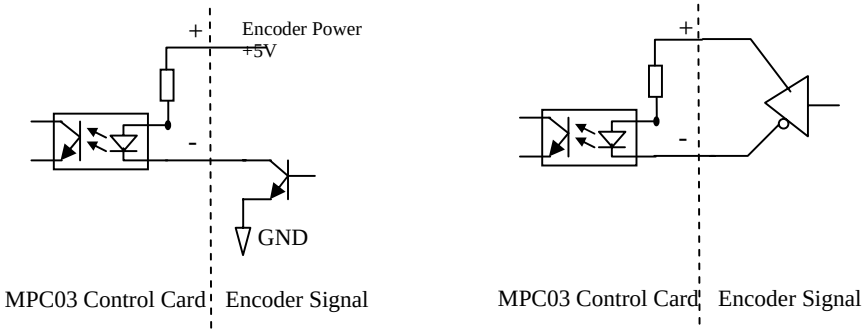
a．Contact Switches **b．NPN-ouput proximity switches**

Fig 3.1 Connection of Digital Inputs



a．Connection of differential signal **b．Connection of single-port signal**

Fig3.2 Connection of Pul/Dir Outputs



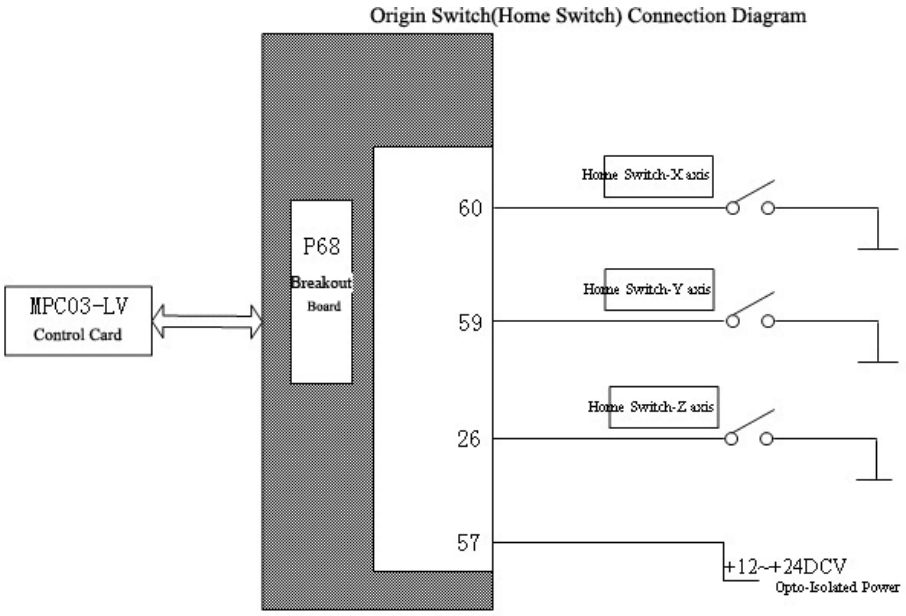
a．Connection of single-port signal **b．Connection of differential signal**

Fig3.3 Connection of Encoder Feedback Inputs

4 Connection of Origin and Limit Signals

4.1 Origin Switches

4.1.1 Origin Switch Connection (low-voltage effective)

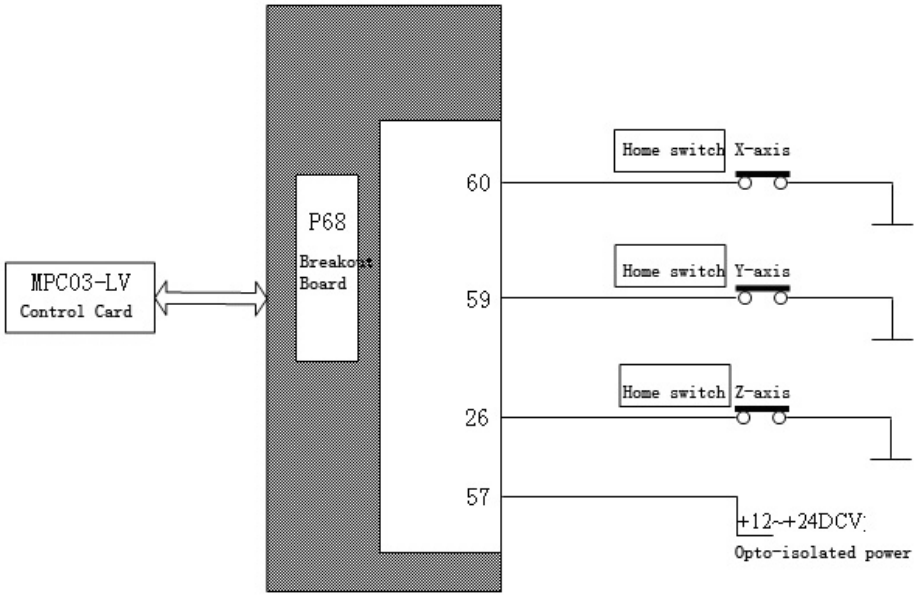


Remark1: ORG Switch should be connected to "5V opto-isolated power GND"

Remark2: The diagram above describes the connection when digital signals are low-voltage effective.

Remark3: If you don't want origin switches, connect these pins to +12-+24DCV opto-isolated power output from the controller OR disconnect these pins.

4.1.2 Origin Switch Connection (high-voltage effective)



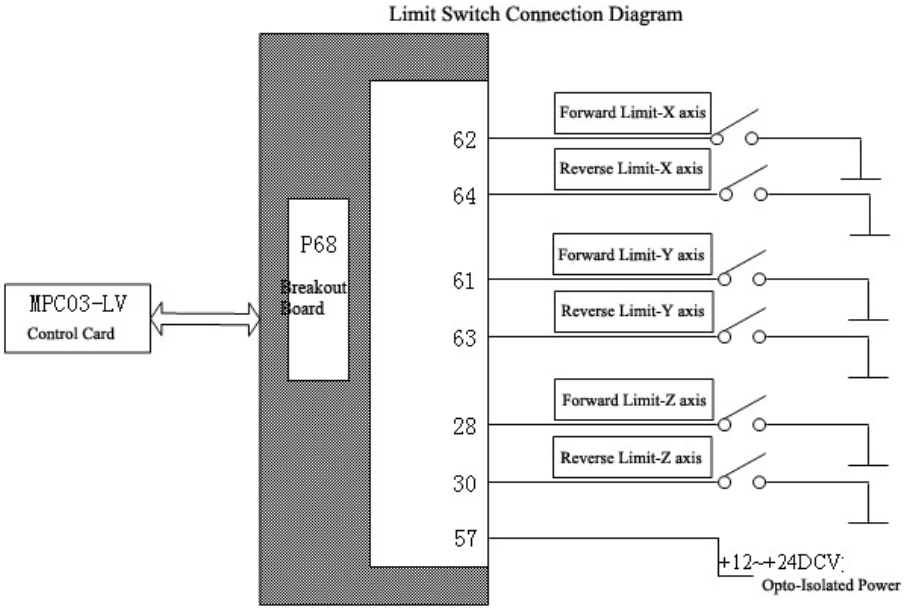
Remarks1: ORG Switch should be connected to “5V opto-isolated power GND”

Remark2: The diagram above describes the connection when signals are high voltage effective (User can set signals low-voltage effective or high-voltage effective with LaserCut software).

Remark3: If you don’t want origin switch, connect these pins to 12~+24V opto-isolated power GND.

4.2 Limit Switches

4.2.1 Limit Switch Connection (low-voltage effective)

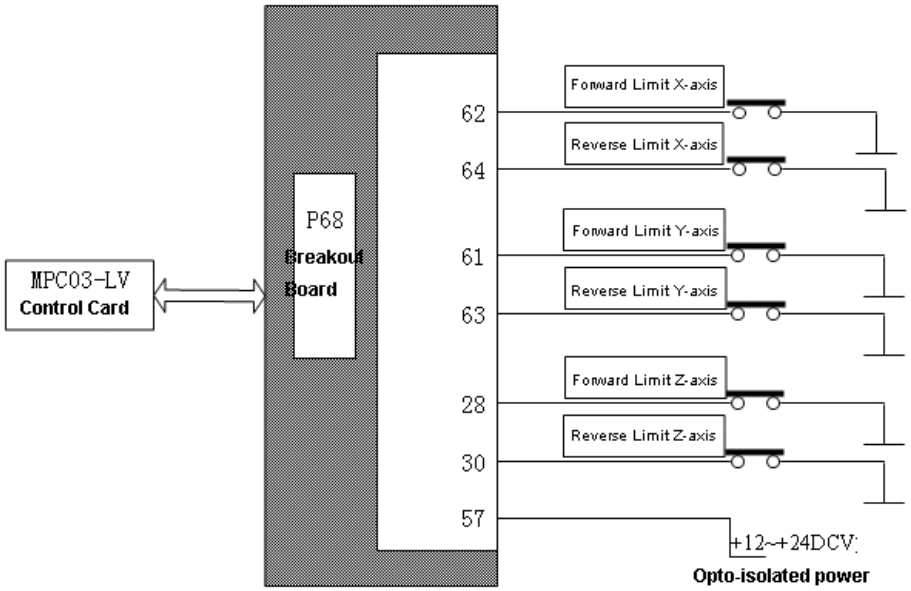


Remarks1: *Limit Switch should be connected to "5V opto-isolated power GND"*

Remarks2: *The diagram above describes the connection when signals are low-voltage effective.*

Remarks3: *If you don't want limit switch, connect these pins to +12~+24DCV opto-isolated power OR disconnect these pins.*

4.2.2 *Limit Switch Connection (high-voltage effective)*



Remarks1: *Limit Switch should be connected to "5V opto-isolated power GND"*

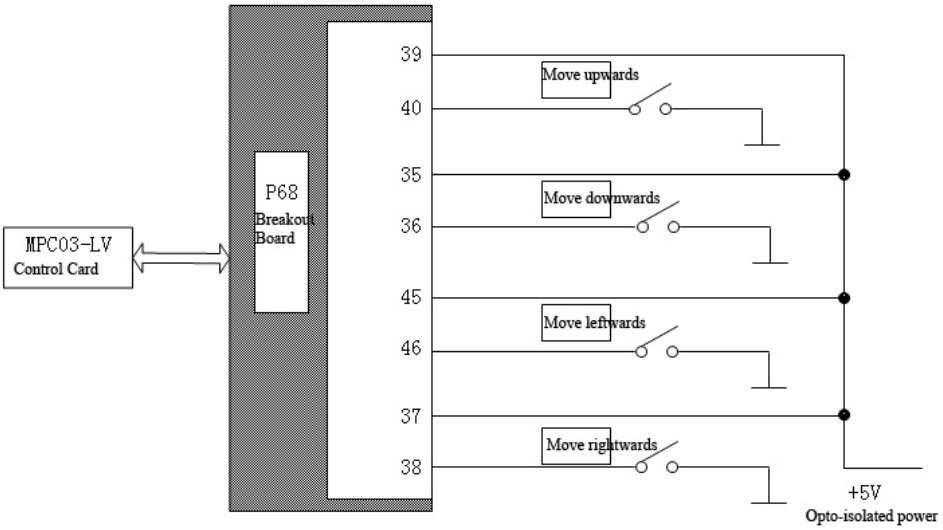
Remarks2: *The diagram above describes the connection when signals are high-voltage effective.*

Remarks3: *If you don't want limit switch, connect these pins to 12~+24V opto-isolated power GND.*

5Connection of Control Panel Functions

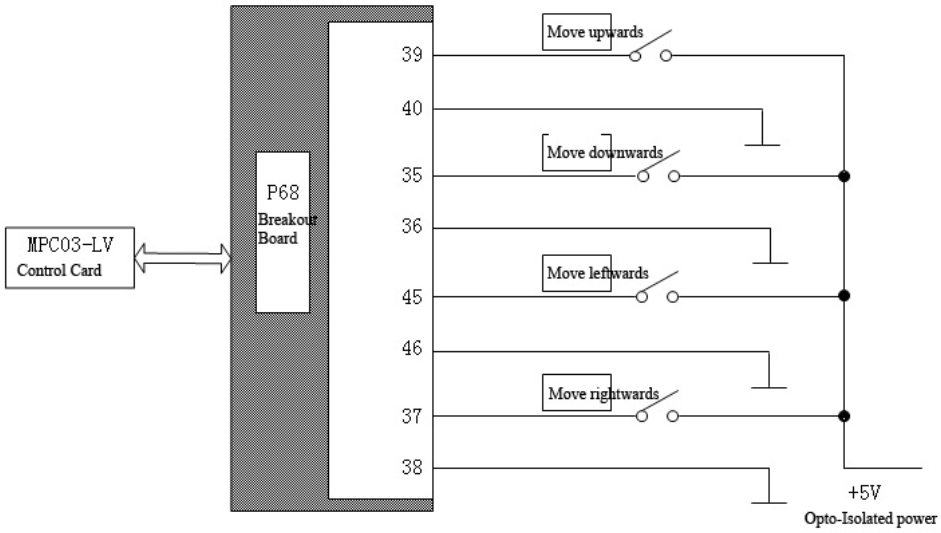
5.1 Connection of Jog Key Switches

5.1.1 Negative Connection



Remarks1: *Connect jog key switches to 5V GND, and then the corresponding positive inputs of encoder to +5V opto-isolated power.*

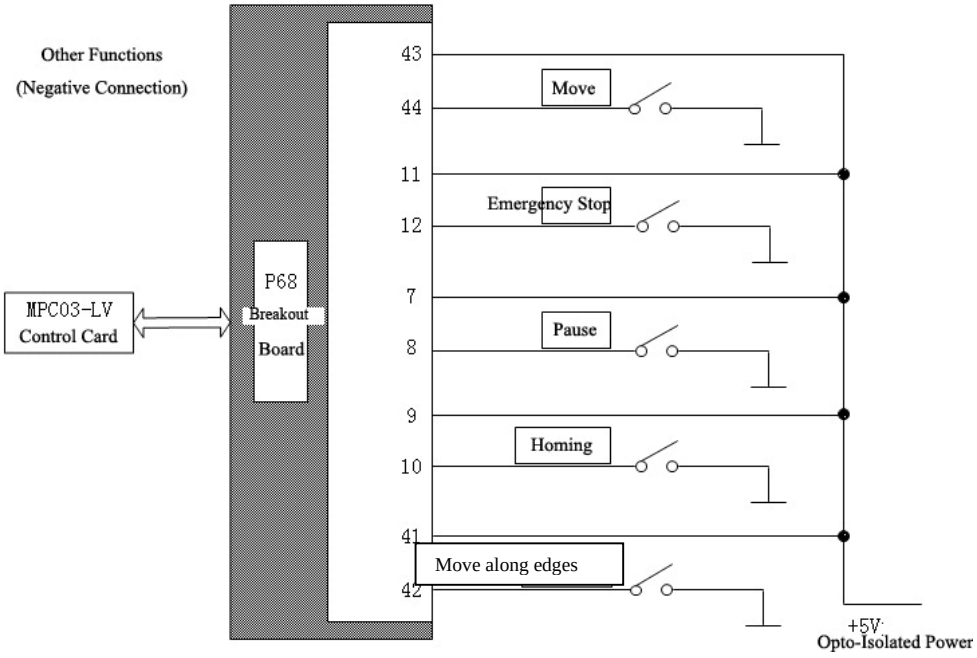
5.1.2 Positive Connection



<u>Remarks1</u>: Connect jog key switches to +5V opto-isolated power, and then the corresponding negative inputs of encoder to 5V GND.

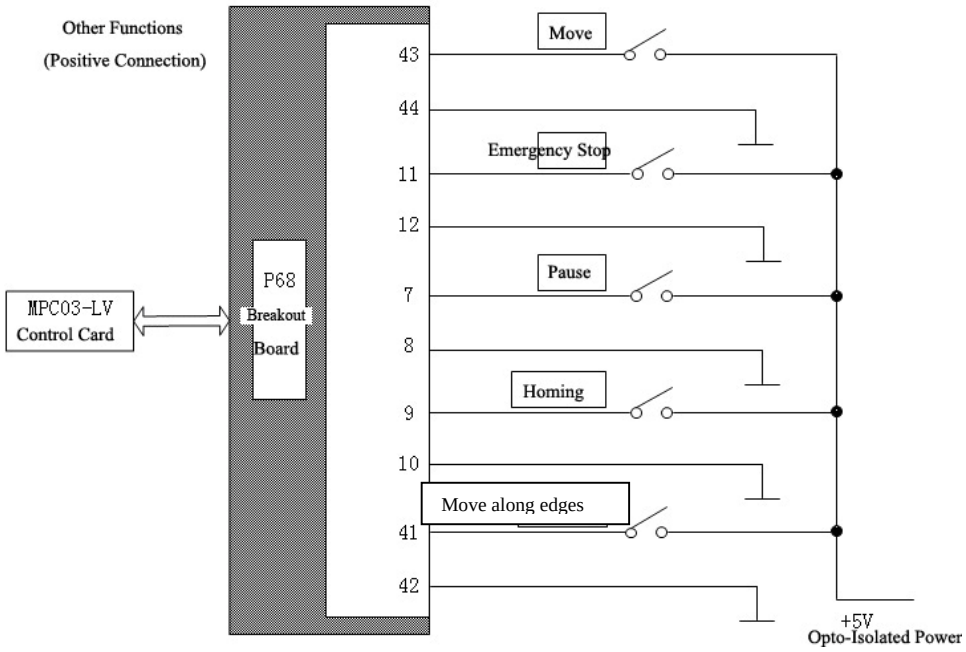
5.2 Connection of Other Function Key Switches

5.2.1Negative Connection



<u>Remarks1</u>: Connect function key switches connect to 5V GND, and then the corresponding positive inputs of encoder to +5V opto-isolated power.

5.2.2Positive Connection



<u>Remarks1</u>: Connect function key switches to +5V opto-isolated power, and then the corresponding negative inputs of encoder to 5V GND.

Appendix

Pins Array

Pin	Name	Description		Pins	Name	Description
1				2		
3				4		
5				6		
7	EA2+	+5V		8	EA2-	Pause
9	EB2+	+5V		10	EB2-	Back to origin (Homing)
11	EZ2+	+5V		12	EZ2-	Emergency stop
13				14	GND5	+5V GND
15	LASER	Laser output		16		
17				18	FRQ/PWM	Laser power(for MPC03-LV)
19	PUL2-	Pulse 2-		20	PUL2+	Pulse 2+
21	DIR2-	Direction 2-		22	DIR2+	Direction 2+
23				24	DCV5	+5DCV
25				26	ORG2	Origin 2
27				28	EL2+	Forward limit 2
29				30	EL2-	Reverse limit 2
31				32	SD2+	Forward deceleration 2
33				34	SD2-	Reverse deceleration 2
35	EA3+	+5V		36	EA3-	Move downward
37	EB3+	+5V		38	EB3-	Move rightward
39	EZ3+	+5V		40	EZ3-	Move upward
41	EA4+	+5V		42	EA4-	Move along edges
43	EB4+	+5V		44	EB4-	Start/Continue
45	EZ4+	+5V		46	EZ4-	Move leftwards-
47				48		
49	PUL3-	Pulse 3-		50	PUL3+	Pulse 3+
51	DIR3-	Direction 3-		52	DIR3+	Direction 3+
53	PUL4-	Pulse 4-		54	PUL4+	Pulse 4+
55	DIR4-	Direction 4-		56	DIR4+	Direction 4+
57	DCV24	+24DCV		58	ALM	External alarm input
59	ORG3	Origin 3		60	ORG4	Origin 4

61	EL3+	Forward limit 3		62	EL4+	Forward limit 4
63	EL3-	Reverse limit 3		64	EL4-	Reverse limit 4
65	SD3+	Forward deceleration 3		66	SD4+	Forward deceleration 4
67	SD3-	Reverse deceleration 3		68	SD4-	Reverse deceleration 4

Remark1: Connect FRQ/PWM to P17 if you are using MPC03-LH, and to P18 if you are using MPC03-LV.