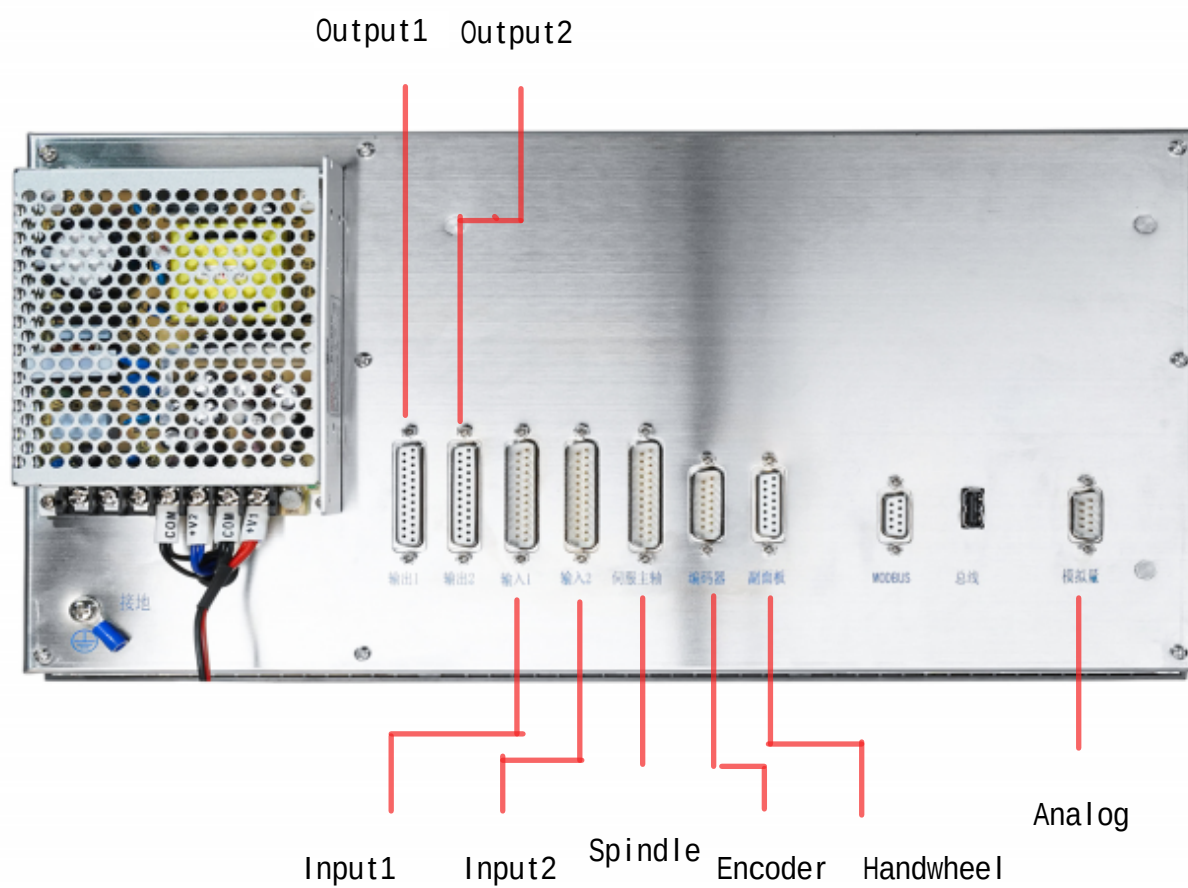
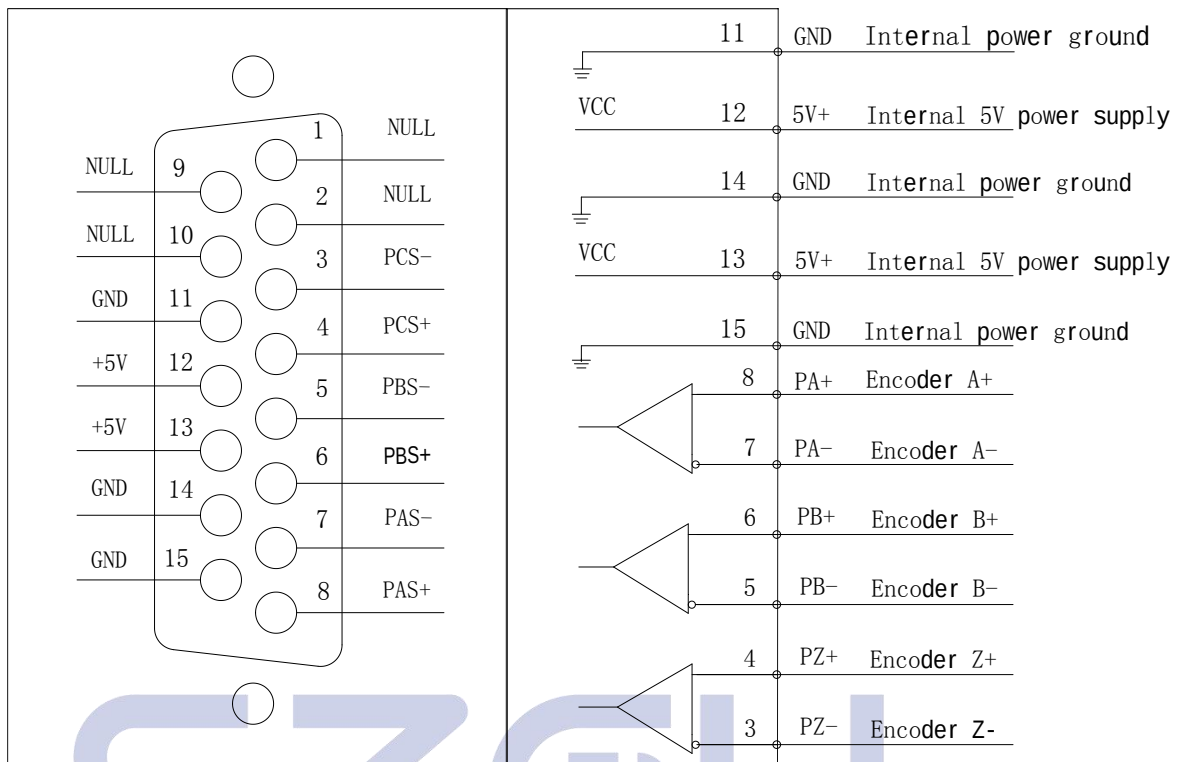


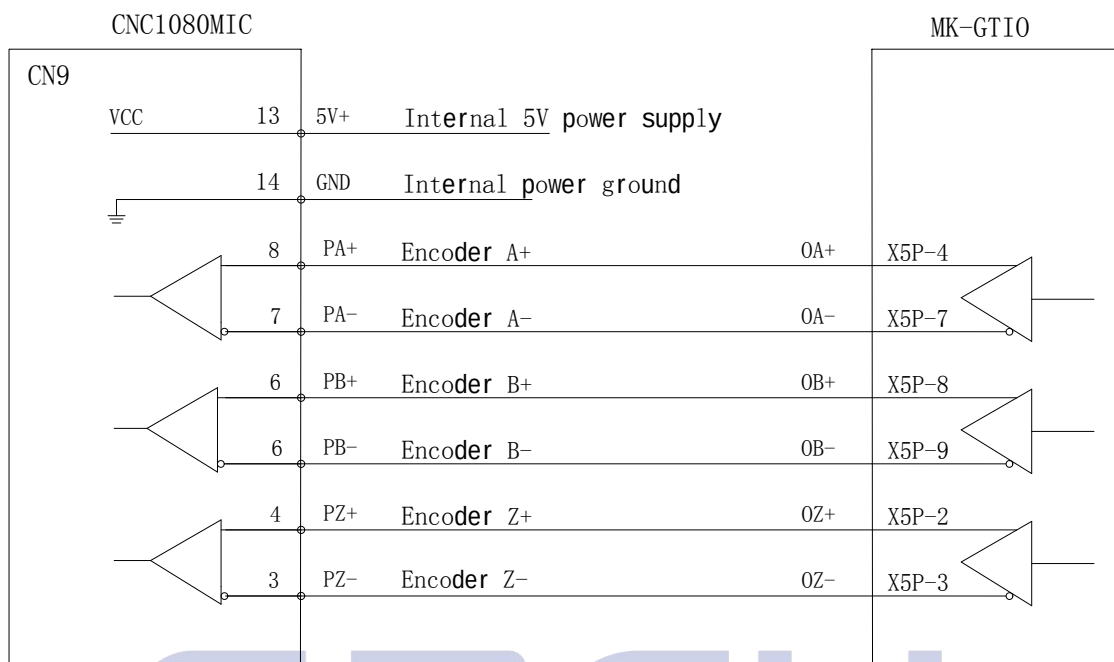


Spindle encoder

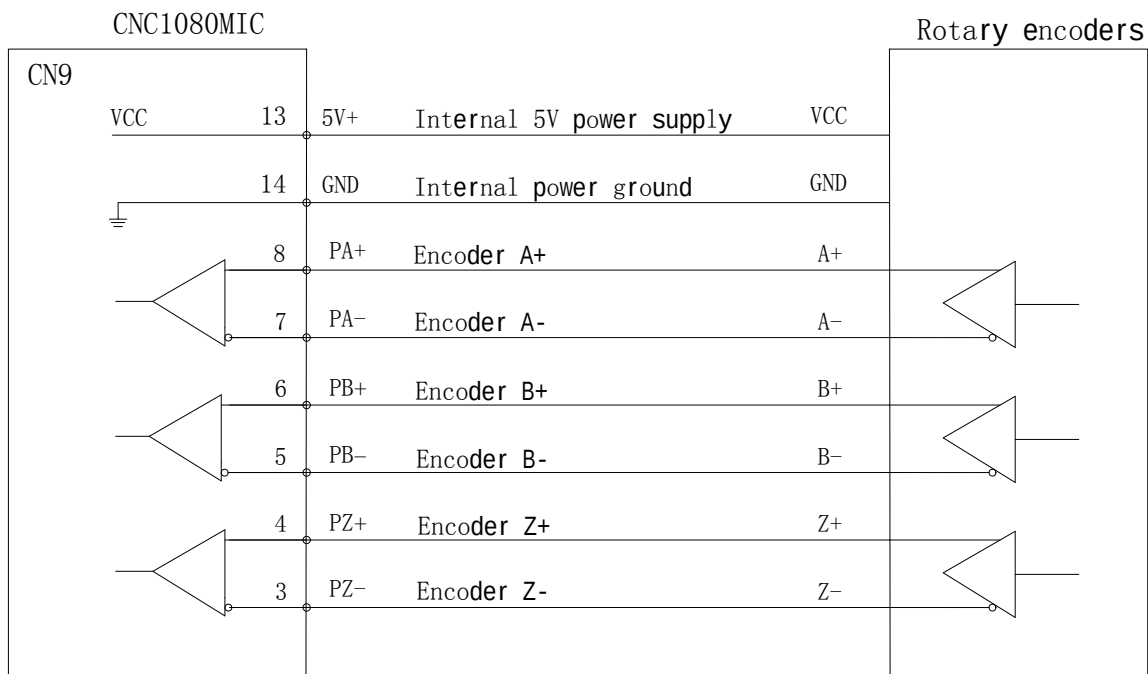


Pin	Signal	Signal description	Pin	Signal	Signal description
1	NULL	No wiring	9	NULL	No wiring
2	NULL	No wiring	10	NULL	No wiring
3	PCS-	Encoder Z-	11	GND	Internal power ground
4	PCS+	Encoder Z+	12	5V+	Internal 5V power supply
5	PBS-	Encoder B-	13	5V+	Internal 5V power supply
6	PBS+	Encoder B+	14	GND	Internal power ground
7	PAS-	Encoder A-	15	GND	Internal power ground
8	PAS+	Encoder A+			

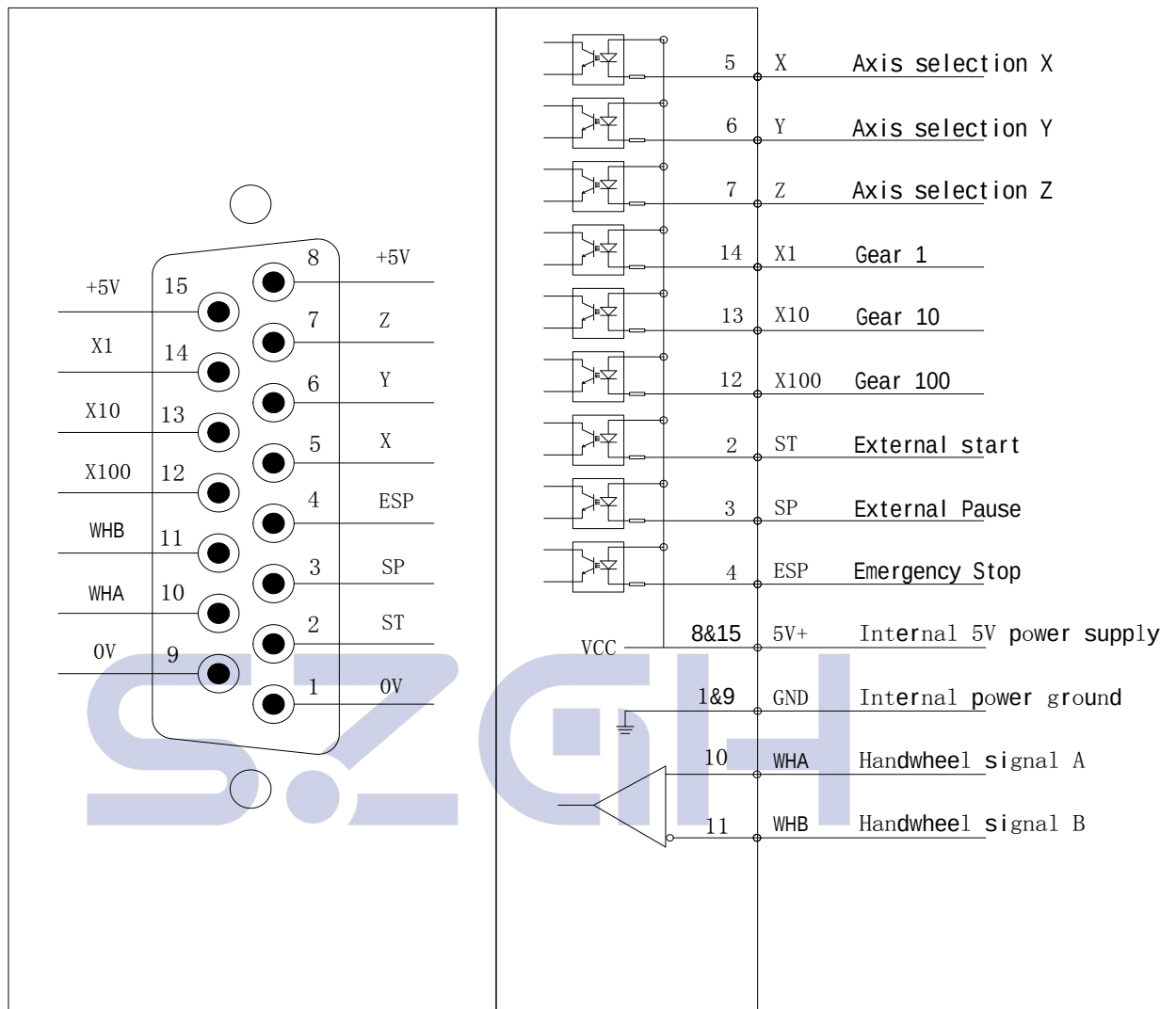
The port and MK servo spindle drive connection diagram



The port and external incremental rotary encoder connection diagram

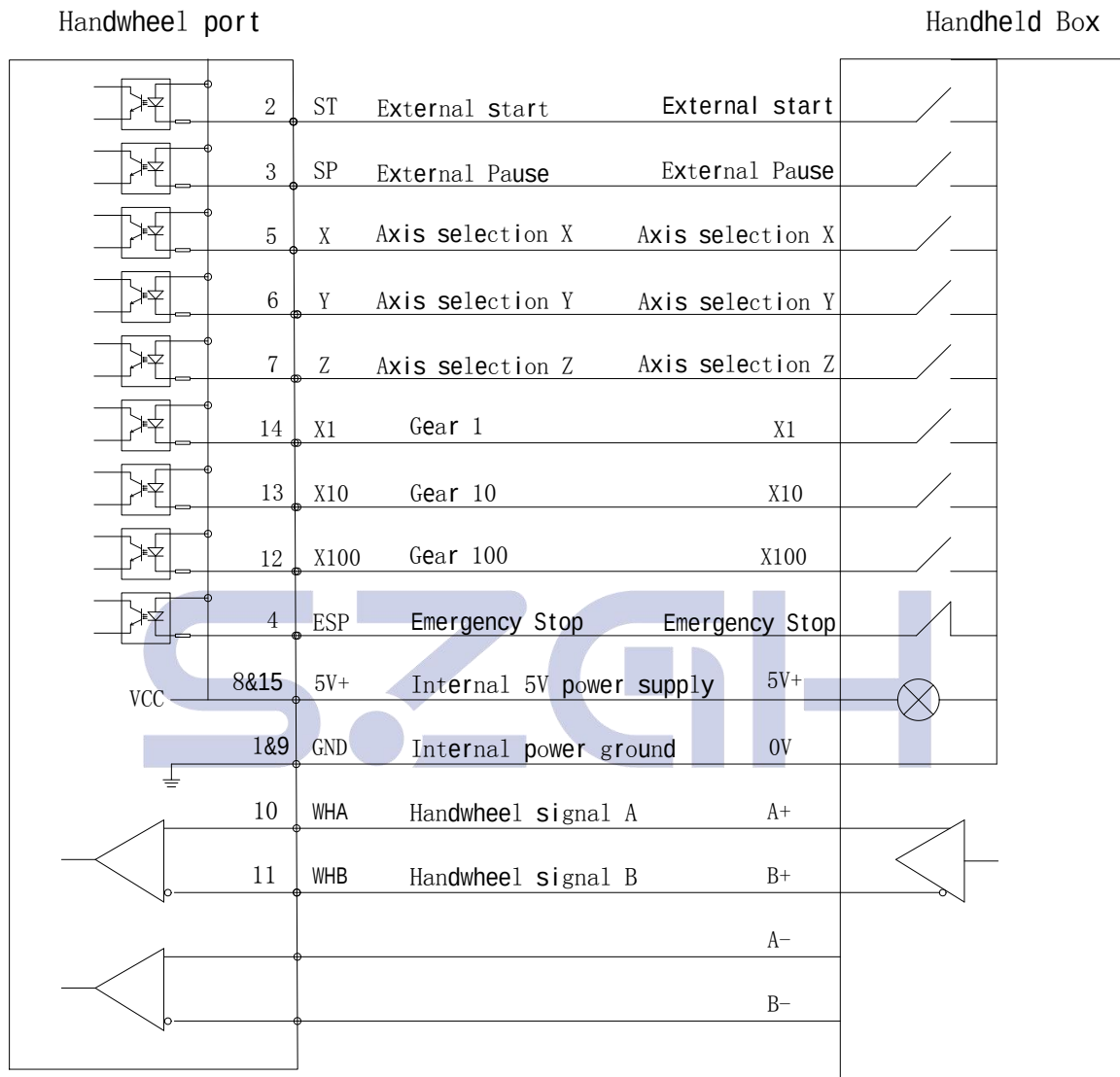


Handwheel

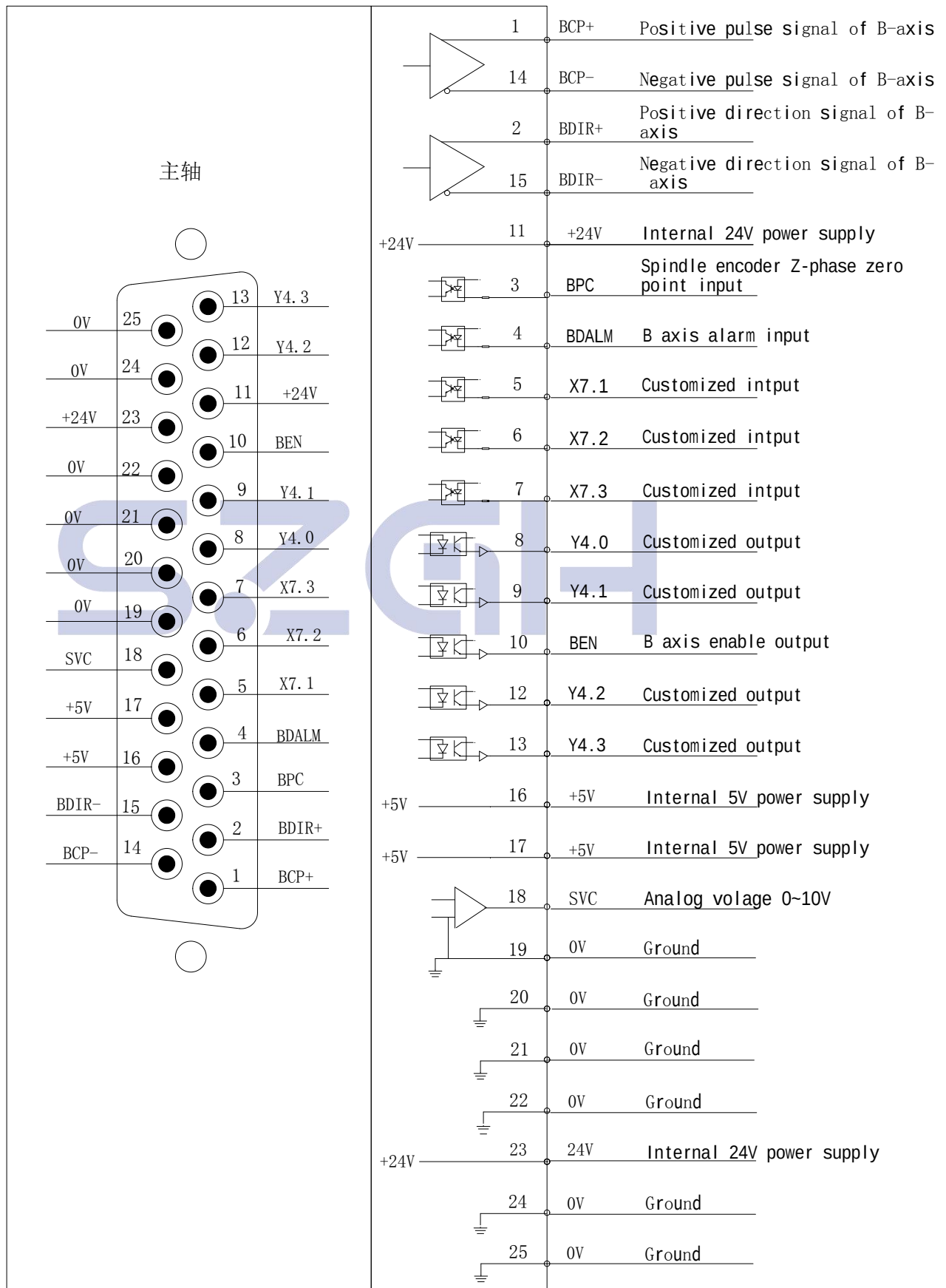


Pin	Signal	Signal description	Pin	Signal	Signal description
1	GND	Internal power ground	9	GND	Internal power ground
2	ST	External start	10	WHA	Handwheel signal A
3	SP	External Pause	11	WHB	Handwheel signal B
4	ESP	Emergency Stop	12	X100	Gear 100
5	X	Axis selection X	13	X10	Gear 10
6	Y	Axis selection Y	14	X1	Gear 1
7	Z	Axis selection Z	15	+5V	Internal 5V power supply
8	+5V	Internal 5V power supply			

Handwheel connection diagram

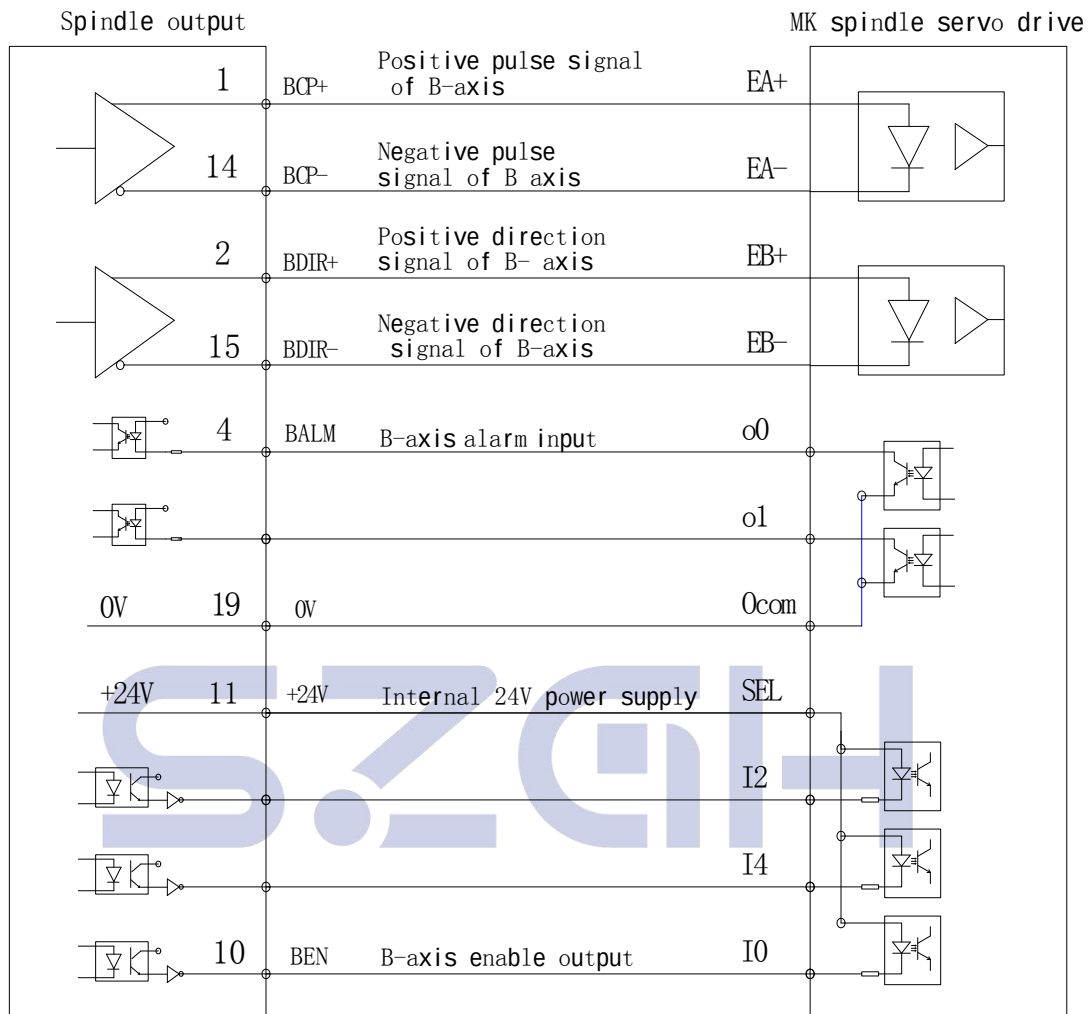


Spindle

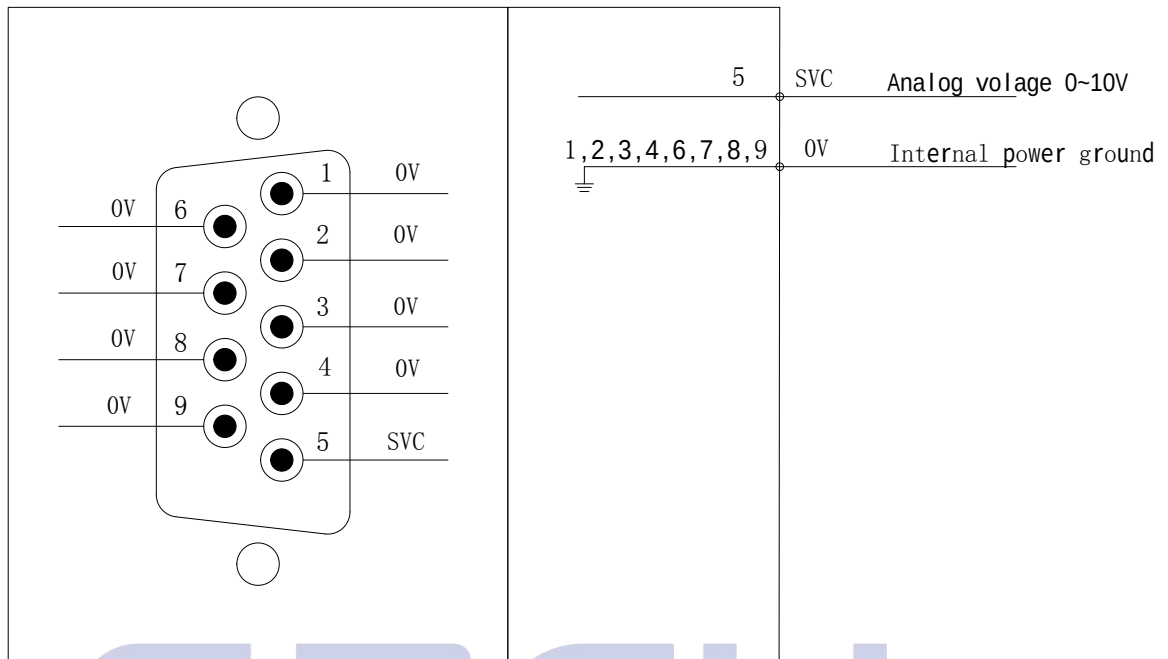


Pin	Signal	Signal description	Pin	Signal	Signal description
1	BCP+	Positive pulse signal of B axis	14	BCP-	Negative pulse signal of B axis
2	BDIR+	Positive direction signal of B axis	15	BDIR-	Negative direction signal of B axis
3	BPC	Spindle encoder Z phase zero point input	16	5V	Internal 5 V power supply
4	BALM	B axis alarm input	17	5V	Internal 5 V power supply
5	X7.1	Customized input	18	SVC	Analog volage 0~10V
6	X7.2	Customized input	19	0V	Ground
7	X7.3	Customized input	20	0V	Ground
8	Y4.0	Customized output	21	0V	Ground
9	Y4.1	Customized output	22	0V	Ground
10	BEN	B axis enable output	23	+24V	Internal 24V power supply
11	24V	Internal 24V power supply	24	0V	Ground
12	Y4.2	Customized output	25	0V	Ground
13	Y4.3	Customized output			

The port and MK spindle servo drive connection diagram

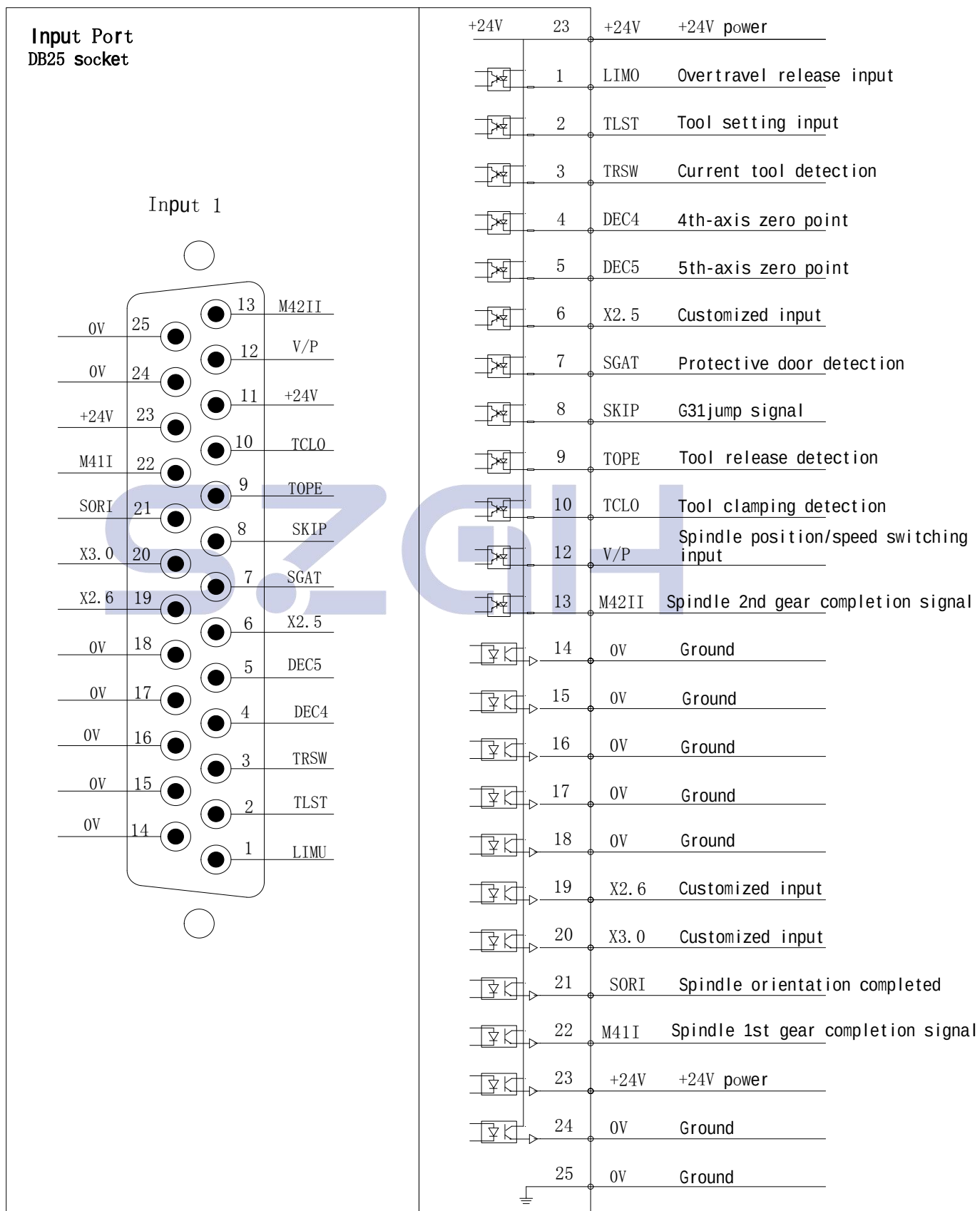


Analog



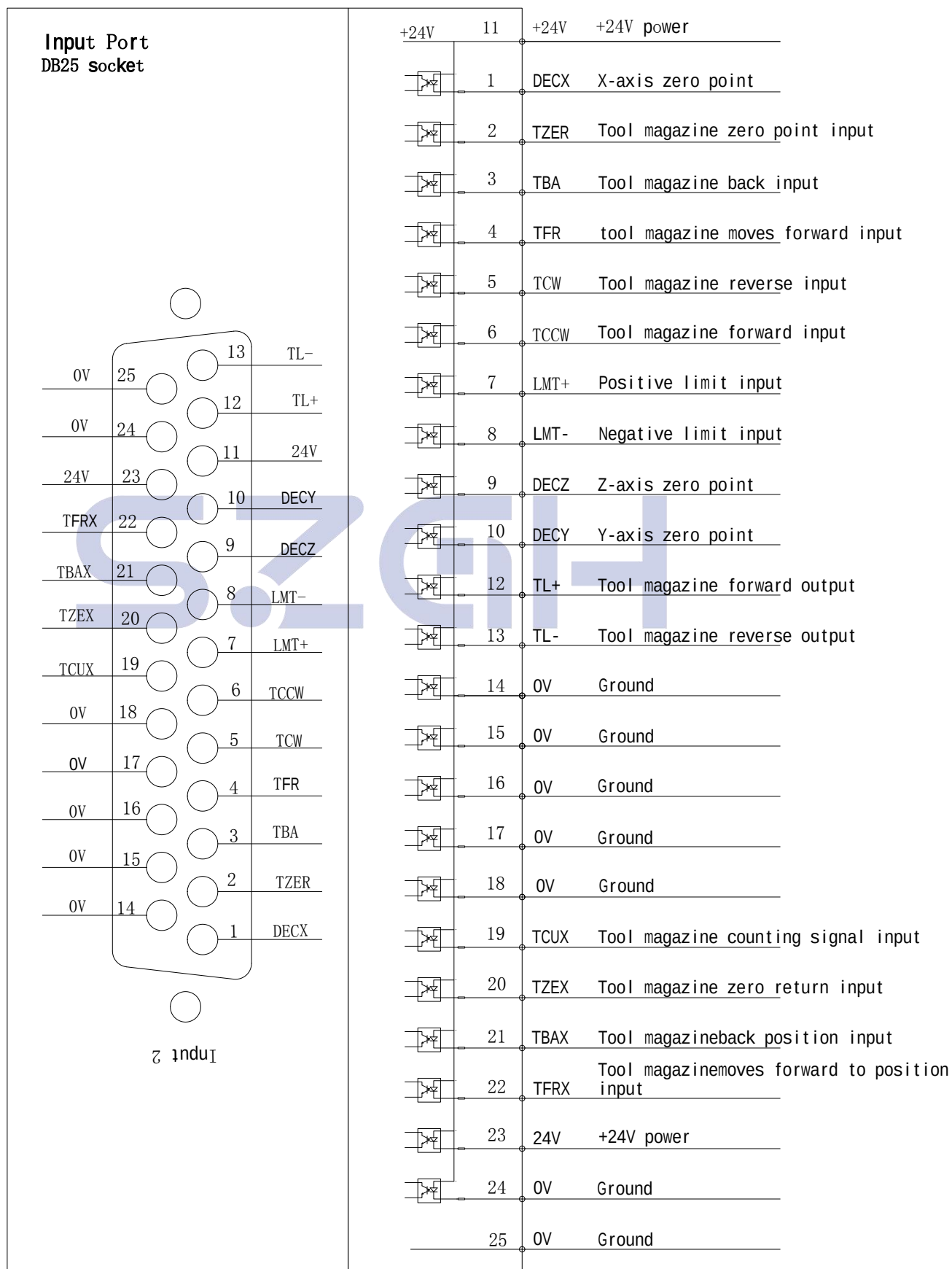
Pin	Signal	Signal description	Pin	Signal	Signal description
1	0V	Internal power ground	6	0V	Internal power ground
2	0V	Internal power ground	7	0V	Internal power ground
3	0V	Internal power ground	8	0V	Internal power ground
4	0V	Internal power ground	9	0V	Internal power ground
5	SVC	Analog voltage 0~10V			

Input signal1



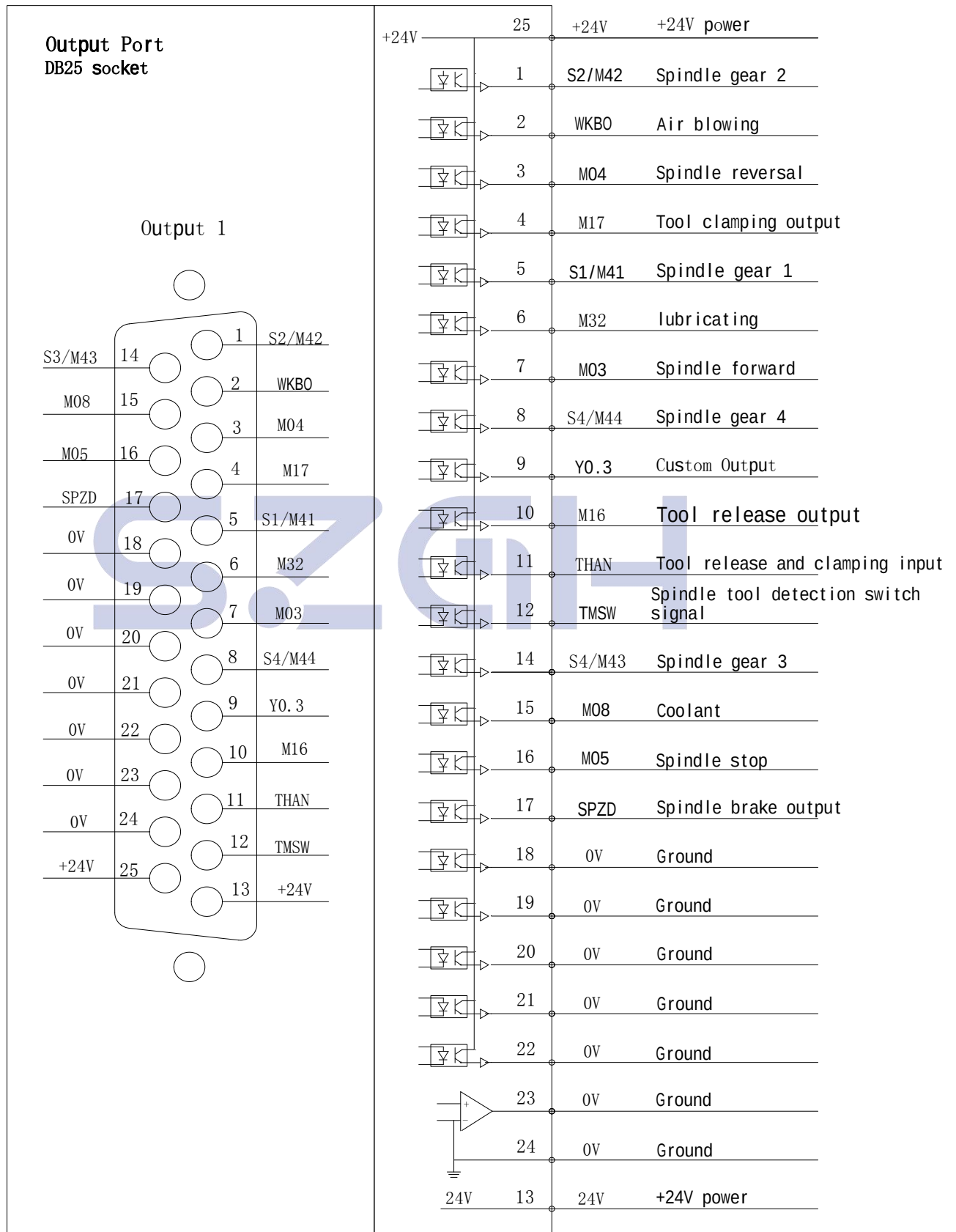
Pin	Signal	Signal description	Pin	Signal	Signal description
1	LIMO	Overtravel release input	14	0V	Ground
2	TLST	Tool setting input	15	0V	Ground
3	TRSW	Current tool detection	16	0V	Ground
4	DEC4	4TH-axis zero point	17	0V	Ground
5	DEC4	5TH-axis zero point	18	0V	Ground
6	X2.5	Customized input	19	X2.6	Customized input
7	SAGT	Protective door detection	20	X3.0	Customized input
8	SKIP	G31 jump signal	21	SORI	Spindle orientation completed
9	TOPE	Tool release detection	22	M41I	Spindle 1st gear completion signal
10	TCLO	Tool clamping detection	23	24V	Internal power supply
11	+24V	Internal power supply	24	0V	Ground
12	V/P	Spindle position/speed switching input	25	0V	Ground
13	M42II	Spindle 2nd gear completion signal			

Input signal 2



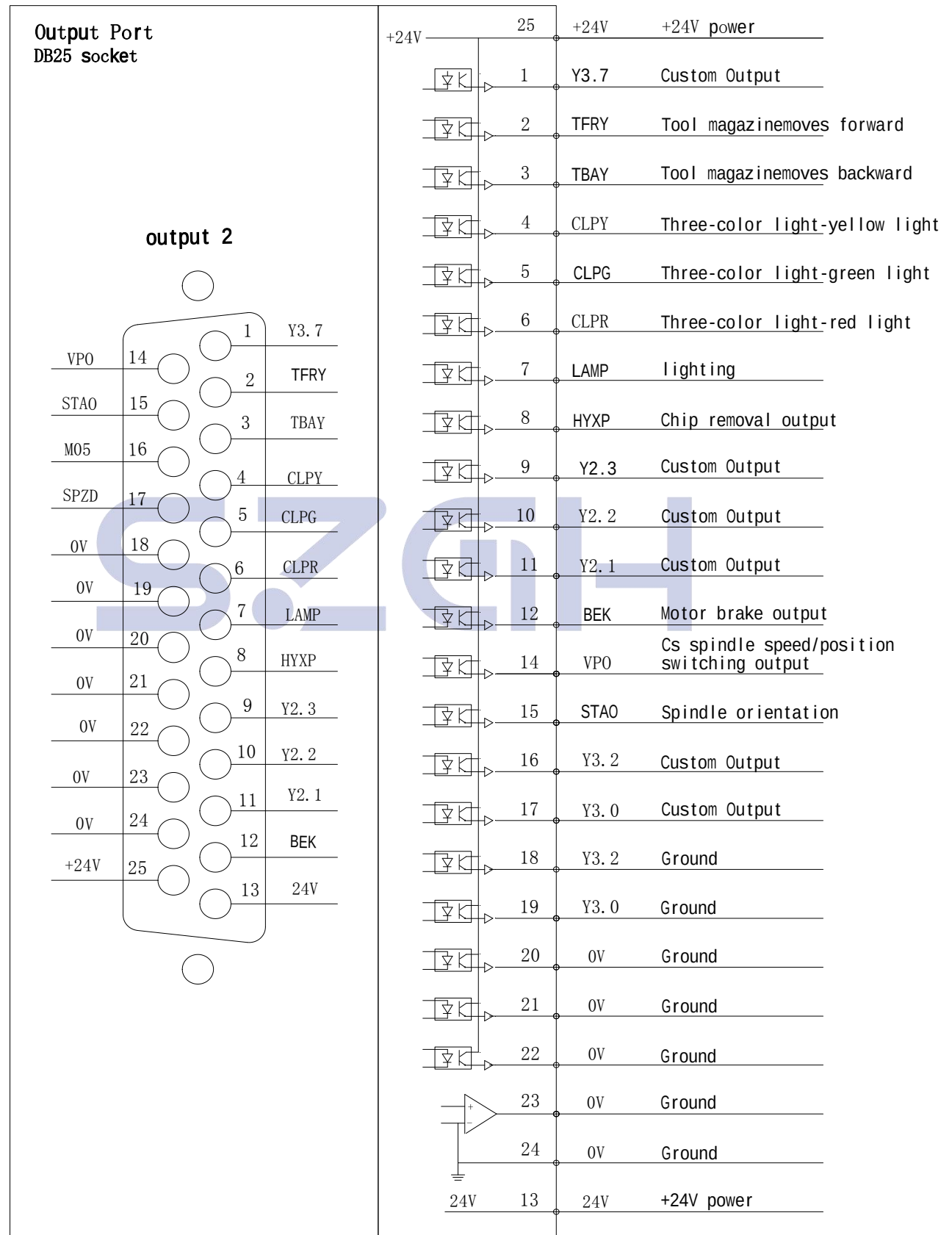
Pin	Signal	Signal description	Pin	Signal	Signal description
1	DECX	X-axis zero point	14	0V	GND
2	DZER	Tool magazine zero return input	15	0V	GND
3	TBA	Tool magazine back input	16	0V	GND
4	TFR	tool magazine moves forward input	17	0V	GND
5	TCW	Tool magazine reverse input	18	0V	GND
6	TCCW	Tool magazine forward input	19	TCUX	Tool magazine counting signal input
7	LMT+	Positive limit input	20	TZEX	Tool magazine zero return input
8	LMT-	Negative limit input	21	TBRX	Tool magazine back position input
9	DECZ	Z-axis zero point	22	TFRX	Tool magazine moves forward to position input
10	DECY	Y-axis zero point	23	24V	+24V power
11	24V	+24V power	24	0V	GND
12	TL+	Tool magazine forward output	25	0V	GND
13	TL-	Tool magazine reverse output			

Output Signal 1



Pin	Signal	Signal description	Pin	Signal	Signal description
1	S2/M42	Spindle gear 2	14	S3/M43	Spindle gear 3
2	WKBO	Air blowing	15	M08	Coolant
3	M04	Spindle reversal	16	M05	Spindle stop
4	M17	Tool clamping output	17	SPZD	Spindle brake output
5	S1/M41	Spindle gear 1	18	0V	GND
6	M32	lubricating	19	0V	GND
7	M03	Spindle forward	20	0V	GND
8	S4/M44	Spindle gear 4	21	0V	GND
9	Y0.3	Custom Output	22	0V	GND
10	M16	Tool release output	23	0V	GND
11	THAN	Tool release and clamping input	24	0V	GND
12	TMSW	Spindle tool detection switch signal	25	24V	+24V power
13	24V	+24V power			

Output Signal 2



Pin	Signal	Signal description	Pin	Signal	Signal description
1	Y3.7	Custom Output	14	VPO	Cs spindle speed/ position switching output
2	TFRY	Tool magazine moves forward	15	M08	Spindle orientation
3	TFAY	Tool magazine moves backward	16	Y3.2	Custom Output
4	CLPY	Three-color light- yellow light	17	Y3.0	Custom Output
5	CLPG	Three-color light- green light	18	0V	Ground
6	CLPR	Three-color light - red light	19	0V	Ground
7	LAMP	lighting	20	0V	Ground
8	HYXP	Chip removal output	21	0V	Ground
9	Y2.3	Custom Output	22	0V	Ground
10	Y2.2	Custom Output	23	0V	Ground
11	Y2.1	Custom Output	24	0V	Ground
12	BRK	Motor brake output	25	24V	+24V power
13	24V	+24V power			