



Automatic Focusing Cutting Head Electric Manual

Apply to: NC12
NC30
NC30B
NC60
NC60B

Shenzhen Worthing Technology Co., Ltd

Test Condition

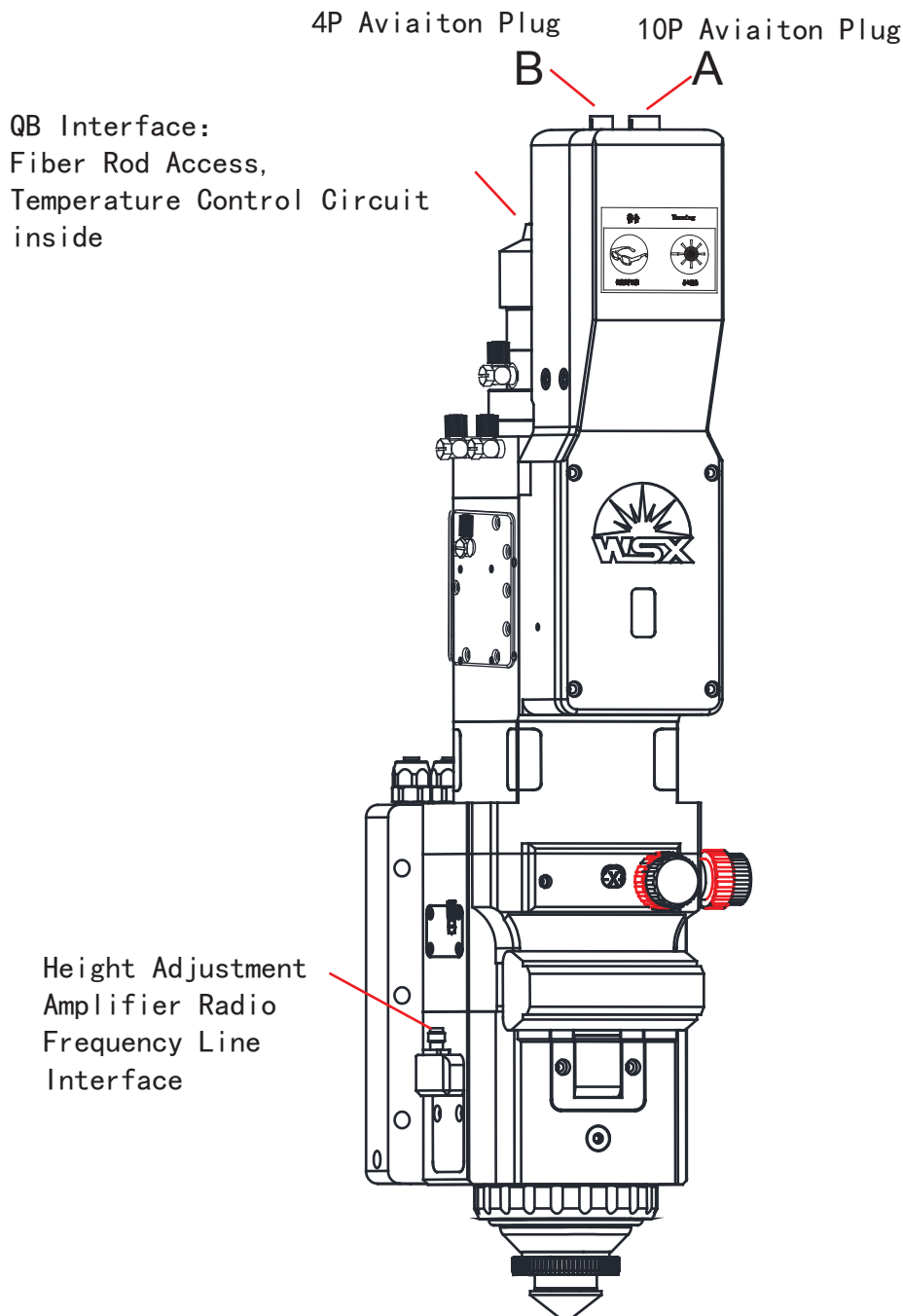
1. Read this manual carefully.
2. Correct wiring.
3. Smoothing and voltage stabilizing circuit.
4. Good earthing.
5. Correct software parameter setting.

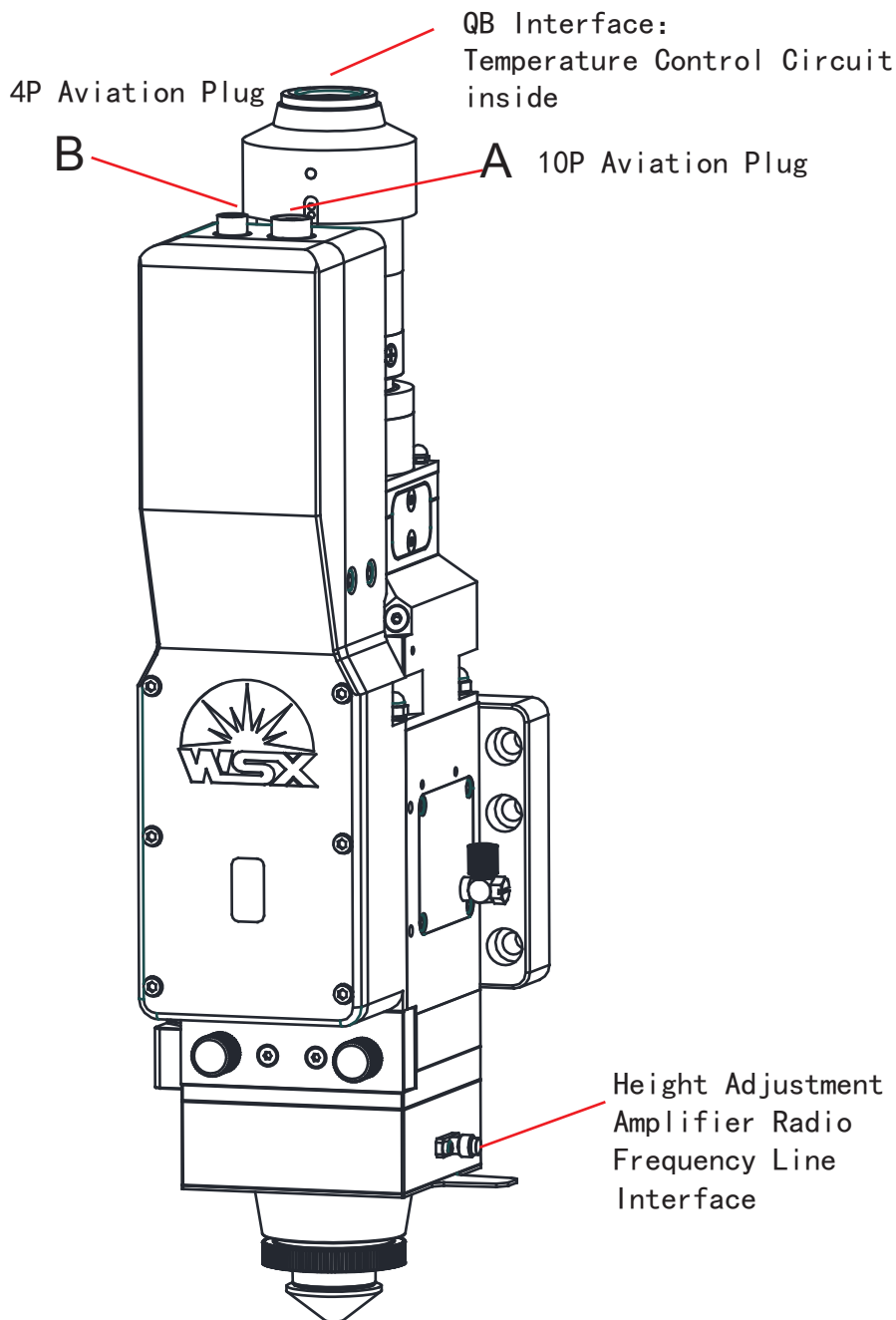
Steps

1. Adjust soft limitation to -100~100
2. Set inching speed to 1mm/s
3. Inching at positive direction until reach positive limitation
4. Inching at negative direction until reach negative limitation
5. After confirming effectiveness of positive & negative limitation, set back to origin
6. Restore soft limitation & inching speed to origin

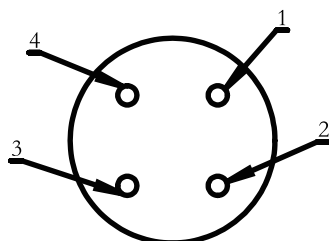
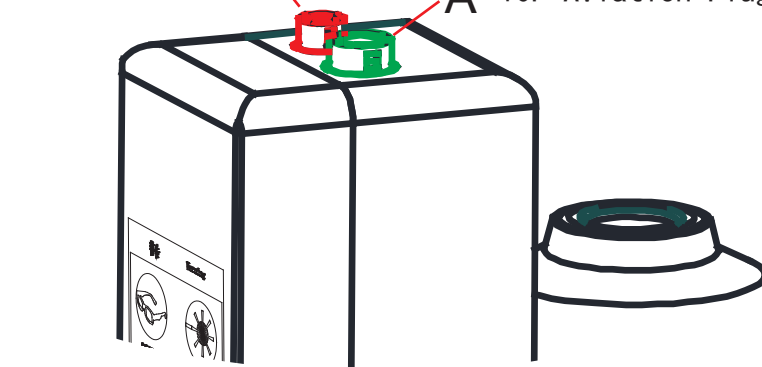


NC30,NC60



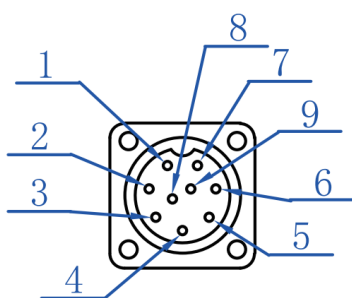


4P Aviation Plug B 10P Aviation Plug A



1	W
2	U
3	V
4	FG (Earthing)

Servo Motor Power Supply Interface (Red)



1	FG (Shield Wire)
2	-D (Encoder Signal Data-)
3	+D (Encoder Signal Data+)
4	SG (Signal Ground Wire)
5	VCC (Encoder Power +5V)
6	+24V (Approach Switch Power Line)
7	0V (Approach Switch Power Line)
8	W+ (Approach Switch Signal Line)
9	W- (Approach Switch Signal Line)

Servo Motor Encoder & Approach Switch Interface (Green)

Display Screen

Menu Key

Set/Save

Downward Key

Upward Key

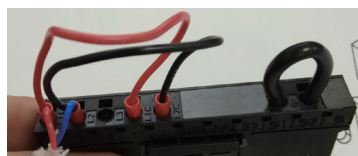


Servo Panel

USB Interface

Uniphase 220V
Power Interface

50P Interface

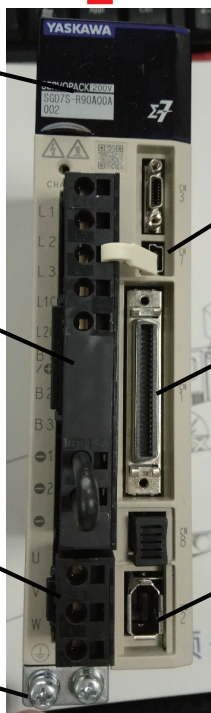


Motor Triphase Power

Encoder Interface



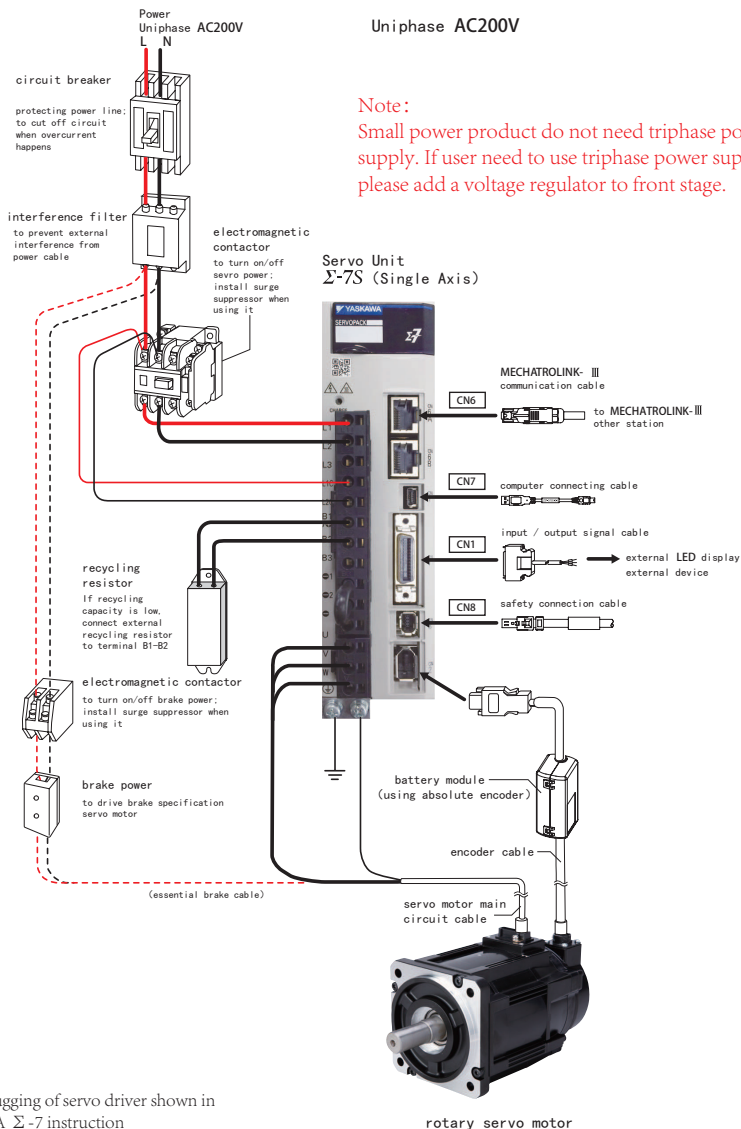
Ground Wire



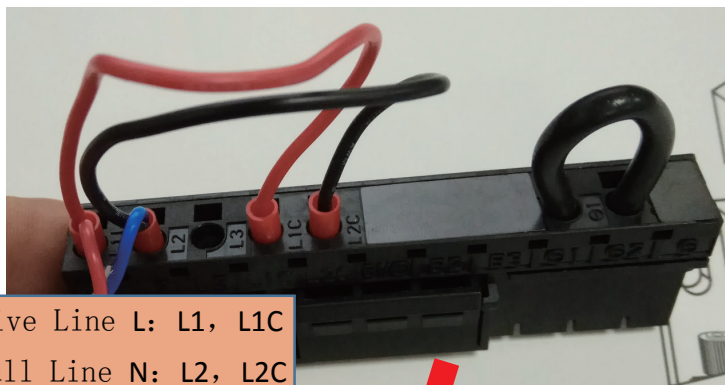
Servo Driver Connects to Motor

YASKAWA-7 System Construction Example

Σ -7S Servo Unit & Rotary Servo Motor



Note: Debugging of servo driver shown in
YASKAWA Σ -7 instruction

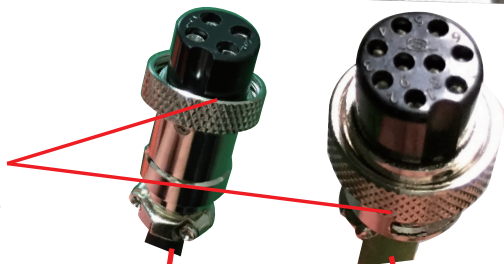


Live Line L: L1, L1C
Null Line N: L2, L2C

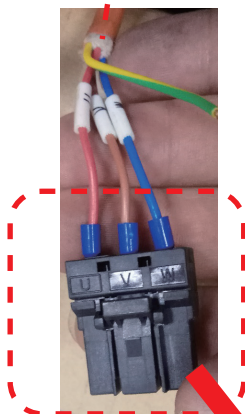




Lock it tight to
prevent loosenees



Sequence of U V W
must be correct





Check Method of Connection between Laser Head and Driver

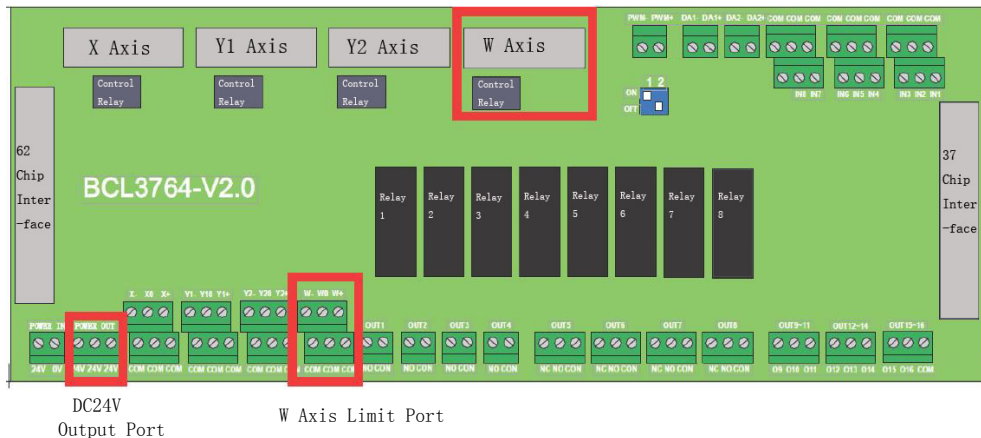
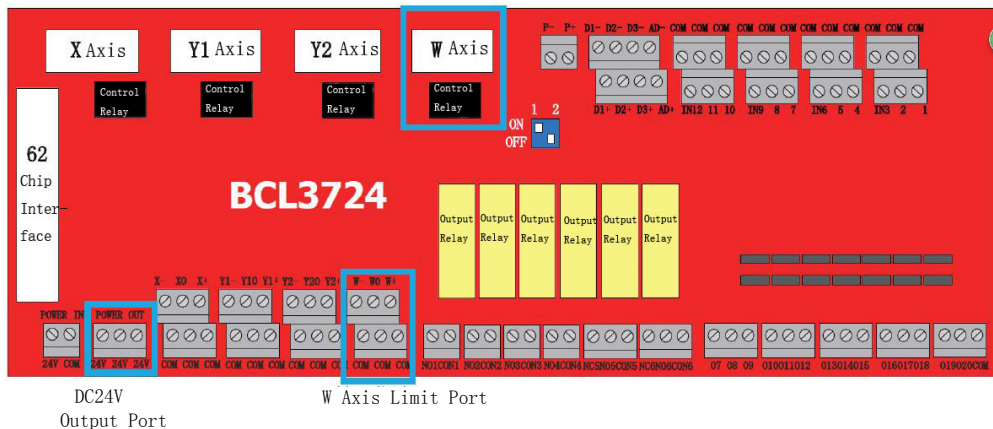
1. Check the tags on the UVW Cables, which should be corresponding to the UVW on the Plugs.
2. There shall not be breakover between UVW and ground wire & shell; value of resistance between UVW and shell shall be higher than $5\text{ M}\Omega$.

Test condition: connect the end to the cutting head; disconnect the end to the driver.

3. UVW interelectrode resistance is about $20\ \Omega$. If the resistance is 0 (short circuit), or the multimeter shows infinity (open circuit), all are considered abnormal.

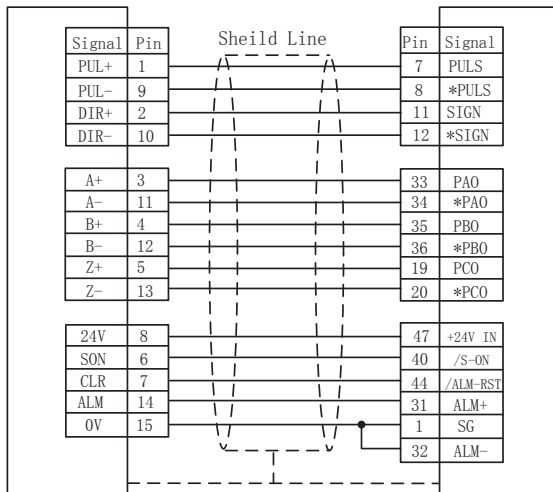
Test condition: connect the end to the cutting head; disconnect the end to the driver.

4. Ground connection (extremely important).



Friendess FSCUT2000A laser cutting control system BCL3764 port plate Axis W DB15 servo control interface connect with YASKAWA servo driver 50P interface definition

Friendess DB15 Servo Control Interface

YASKAWA Σ -V Servo 50P Interface


Parts of parameter list, subject to actual using and YASKAWA servo instruction.

NC30 Parameter

Parameter	Value	Parameter	Value	Parameter	Value
PN000	0010	PN170	1400	PN402	50
PN00B	0101	PN200	0000	PN403	50
PN100	120	PN20E	4194304	PN406	100
PN102	180	PN210	2500	PN50A	8100
PN103	100	PN212	2500	PN50B	6548

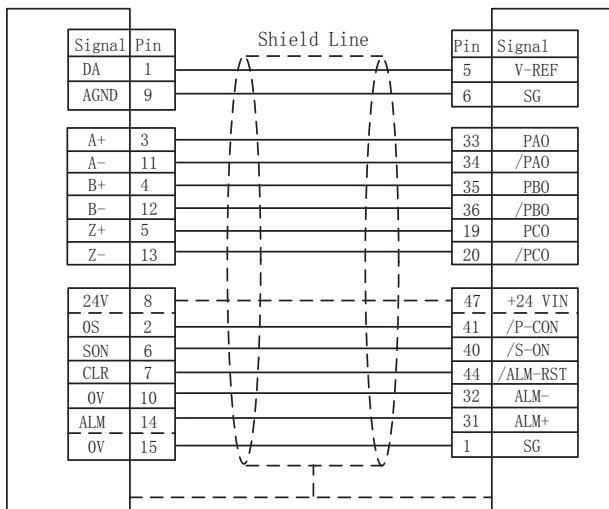
NC60 Parameter

Parameter	Value	Parameter	Value	Parameter	Value
PN000	0011	PN170	1400	PN402	50
PN00B	0101	PN200	0000	PN403	50
PN100	120	PN20E	4194304	PN406	100
PN102	180	PN210	2500	PN50A	8100
PN103	100	PN212	2500	PN50B	6548

Note: 1.Definition of servo driver and servo motor connection shown in YASKAWA servo driver instruction;
2.Please use uniphase power, L connects to L1 & L1C; N connects to L2 & L2C.

Friendless FSCUT4000A laser cutting control system BCL3724 port plate Axis W DB15 servo control interface connect with YASKAWA servo driver 50P interface definition

BCS100 Servo Driver Interface

YASKAWA Σ Series Servo 50P Interface


Parts of parameter list, subject to actual using and YASKAWA servo instruction.

NC30 Parameter

Parameter	Value	Parameter	Value	Parameter	Value
PN000	0000	PN170	1400	PN402	50
PN00B	0101	PN200	0000	PN403	50
PN100	120	PN20E	4194304	PN406	100
PN102	180	PN210	2500	PN50A	8100
PN103	100	PN212	2500	PN50B	6548

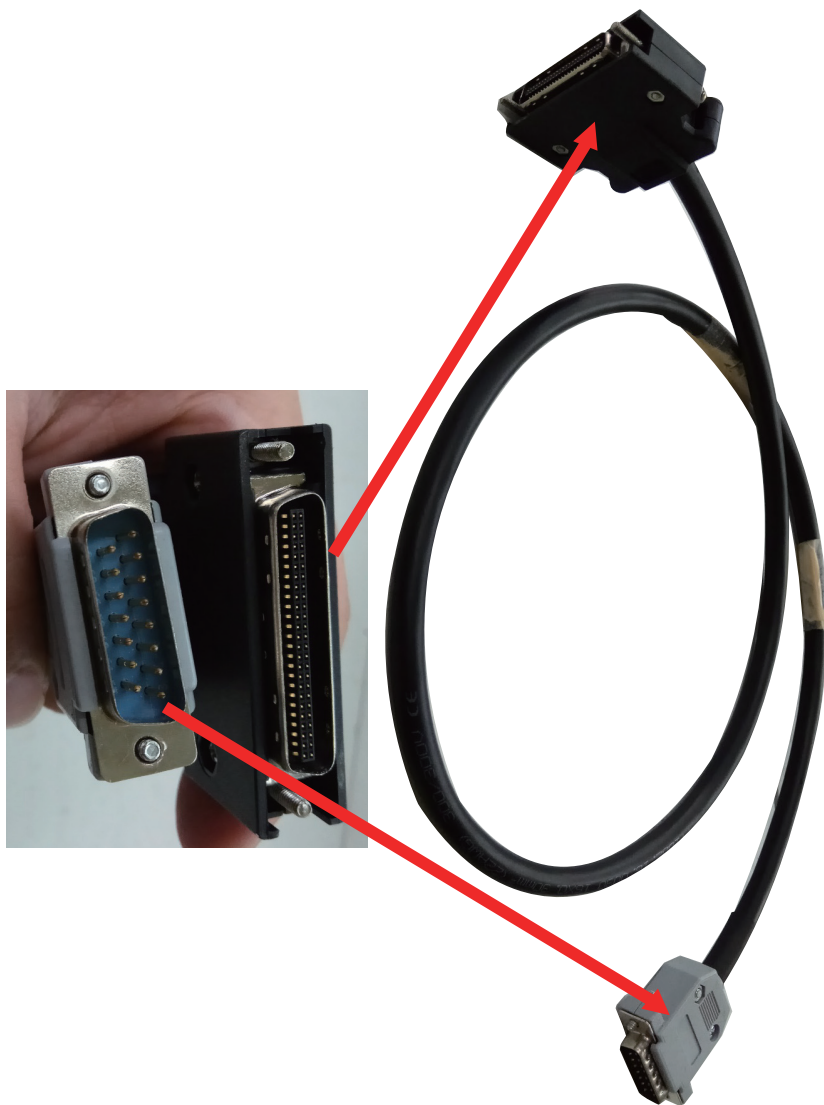
NC60 Parameter

Parameter	Value	Parameter	Value	Parameter	Value
PN000	0001	PN170	1400	PN402	50
PN00B	0101	PN200	0000	PN403	50
PN100	120	PN20E	4194304	PN406	100
PN102	180	PN210	2500	PN50A	8100
PN103	100	PN212	2500	PN50B	6548

Note: 1.Definition of servo driver and servo motor connection shown in YASKAWA servo driver instruction;
2.Please use uniphase power, L connects to L1 & L1C; N connects to L2 & L2C.

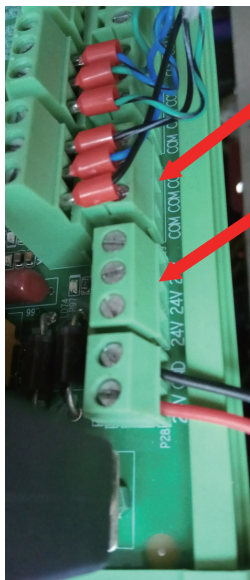
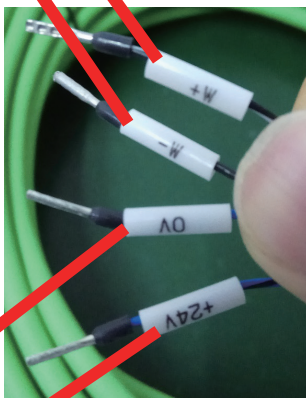
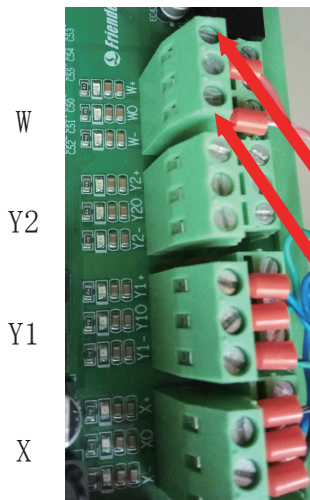
50Pin Interface

connects to Driver CN1



15Pin Interface W Axis





Definition of laser focusing djustment range limitation switch connector

Cutting heads range limit interface				BCL3764 Terminal plate interface	
W+	8	Shield line	W+	Axis W positive limit	
W-	9		W-	Axis W negative limit	
+24	6		24	power output	
0V	7		COM	common port	

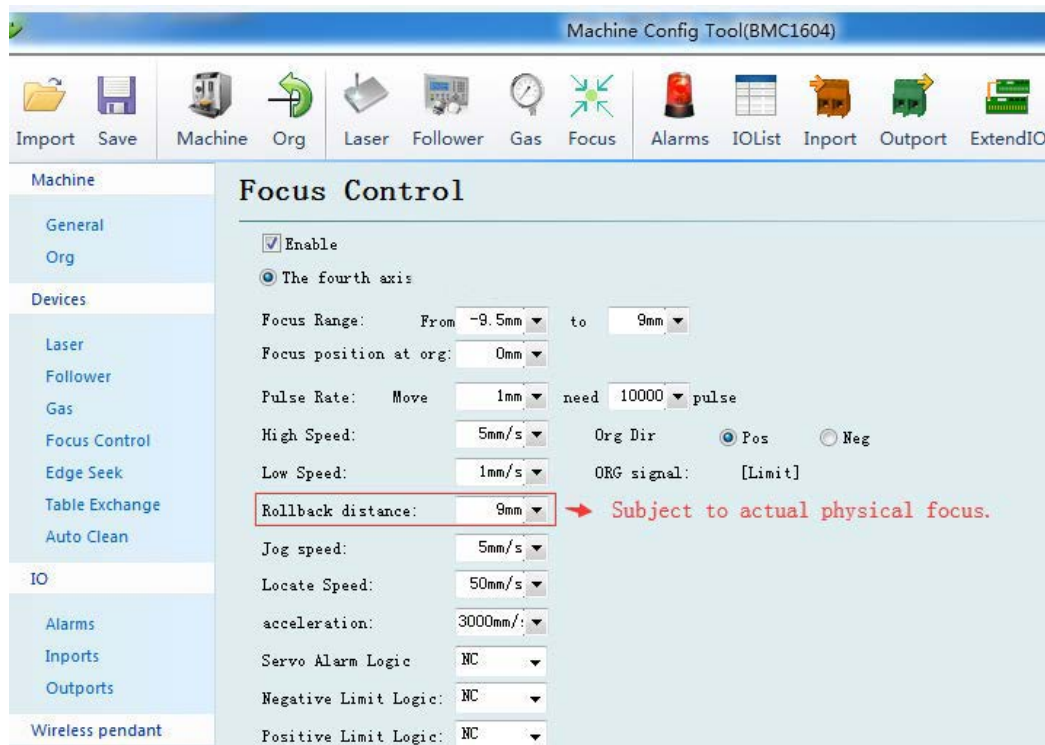
Check method of Limit Signal

Test Condition

- 1.Connect to DC24 power
- 2.Do Not connect W+ W- first
- 3.Laser head scale 0 should be at the middle of the window

Steps

- 1.Choose “Direct Voltage” on multimeter, 200V or high position.
- 2.Connect the red probe to DC24V end, connect the black probe to W+ end (laser head wire side).
- 3.Displayed voltage higher than 18V is normal (theoretical value is 24V); displayed voltage higher than 14V is abnormal (theoretical value is 0V).
- 4.Inch at the positive direction, if voltage changes, and the differential voltage is higher than 12V, it is normal.
- 5.Connect the red probe to DC24V end, connect the black probe to W- end (laser head wire side).
- 6.Displayed voltage higher than 18V is normal (theoretical value is 24V); displayed voltage higher than 14V is abnormal (theoretical value is 0V).
- 7.Inch at the positive & negative direction successively, if voltage changes, and the differential voltage is higher than 12V, it is normal.
- 8.Connect W+ & W- to corresponding ports on the system expansion card.
- 9.Open the control software, set limit logic to normal closed. Inch to positive & negative limit, observe whether the system can detect the limits.
- 10.Above is the check method of normal closed limit switch; for checking normal open limit switch is on the contrary.



Note: 1.This parameter is default value; when user changes it, please avoid hard ware damage;
2 . Please contact technician to get specific parameters of different lens combinations.

Machine Config Tool(BMC1604)

Import Save Machine Org Laser Follower Gas Focus Alarms IOList Import Output ExtendIO BCP5045

Machine

General

Org

Devices

Laser

Follower

Gas

Focus Control

Edge Seek

Table Exchange

Auto Clean

IO

Alarms

Inports

Outports

Wireless pendant

Wireless pendant

File Location

File Location

Focus Control

☒ Enable

☒ The fourth axis
 ☐ Precitec
 ☐ HighYAG
 ☐ BCL4516E [No Connection]

Focus Range: From to

Focus position at org:

Pulse Rate: Move need pulse

High Speed: Org Dir ☒ Pos ☐ Neg

Low Speed: ORG signal:

Rollback distance:

subject to actual physical focus

Jog speed:

Locate Speed:

acceleration:

Servo Alarm Logic

Negative Limit Logic:

Positive Limit Logic:

Note: 1.This parameter is default value; when user changes it, please avoid hard ware damage;
 2. Please contact technician to get specific parameters of different lens combinations.

Purpose: To revise “Rollback distance”, and make actual physical focus coincided with software focus which as standard of follow-up technological adjustment.

Method: 1. With cutting kerf method, judge the focus position by the width of cutting kerf. The cutting kerf at the focus position is the narrowest.
2. Revise “Rollback distance”, and make actual physical focus coincided with software focus which as standard of follow-up technological adjustment.

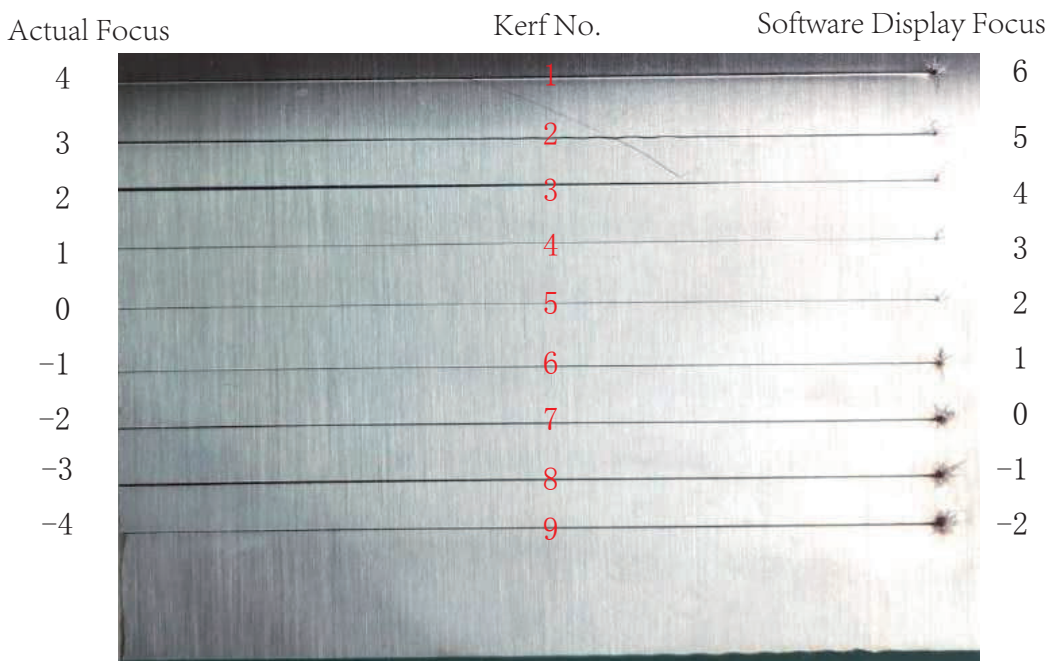
For example: 1. Platform setting: 

2. Start cutting from software focus +6 with an interval of 1mm, keep cutting to focus -2. If the 5th kerf is the narrowest, the actual focus 0 is at the position of current software displayed focus +2.

3. Revise: If actual focus is higher than software displayed focus, then
Rollback distance (correct) = Rollback distance (setting) - value difference
Rollback distance = 9 - 2 = 7

Vice versa.

Cutting kerf Method



Weihong Expansion Board 1

Terminal Board Wiring Diagram

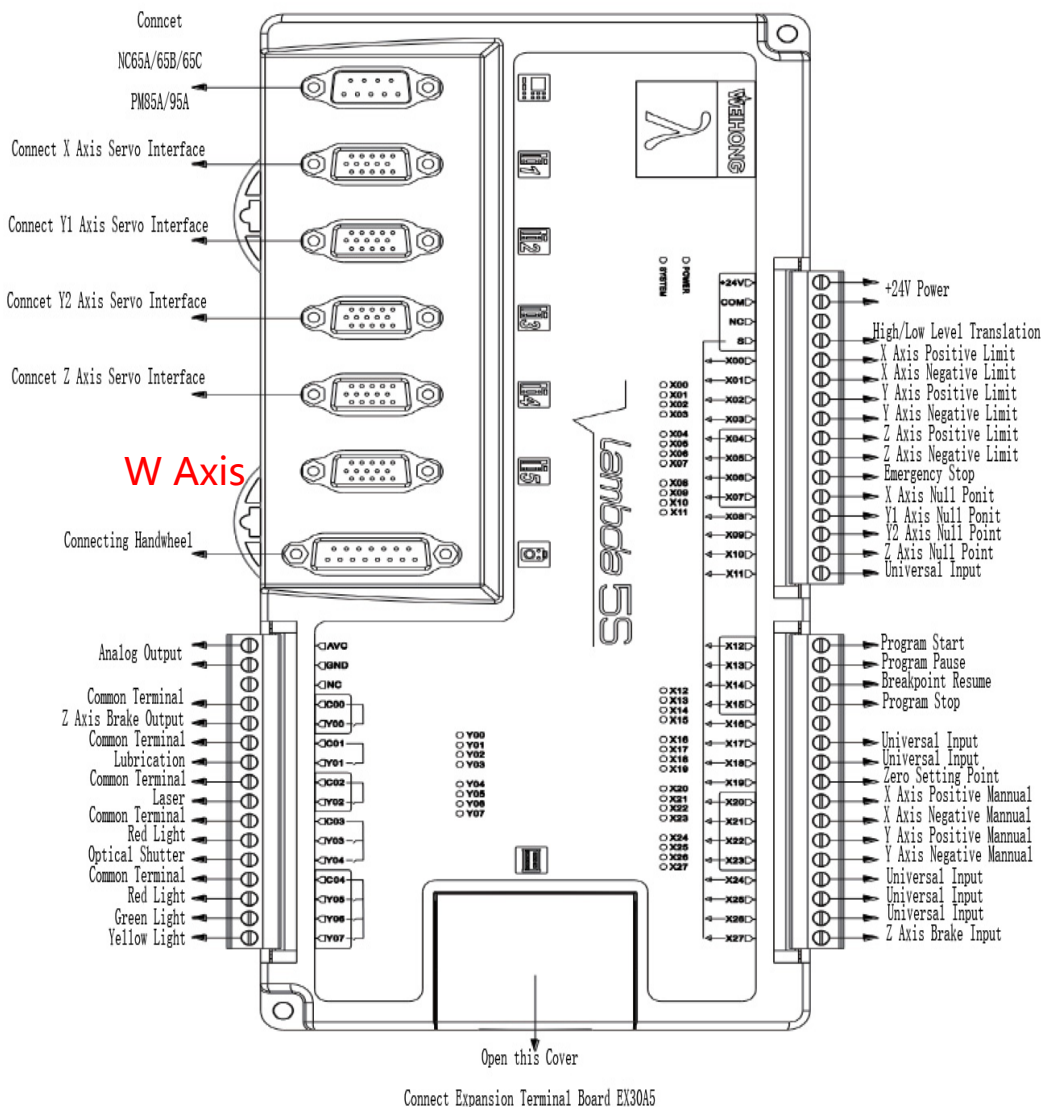


Fig 4-1 Laser Cutting System (Double Y) Lambda Controller Connection Diagram

Weihong Expansion Board 2

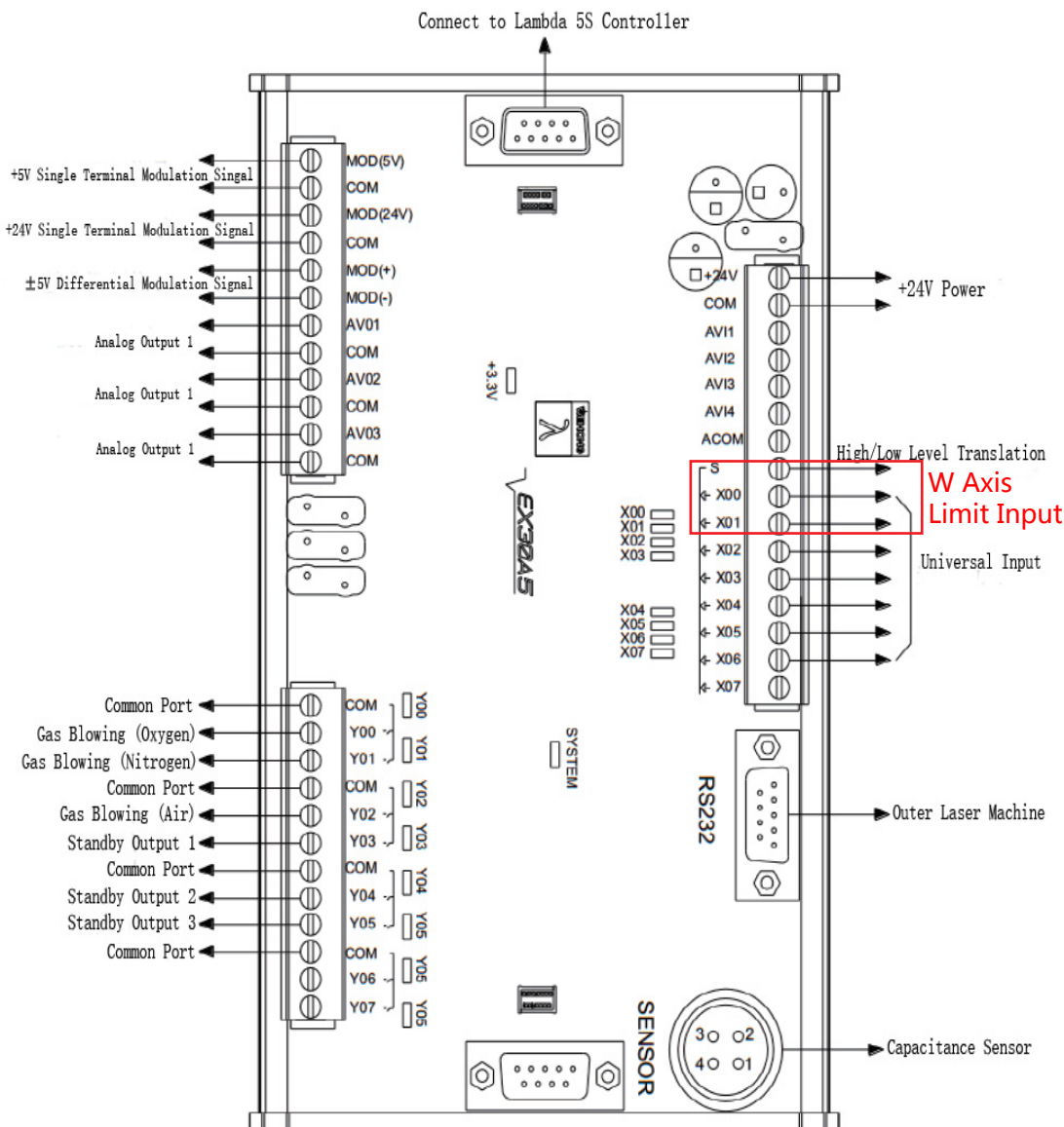
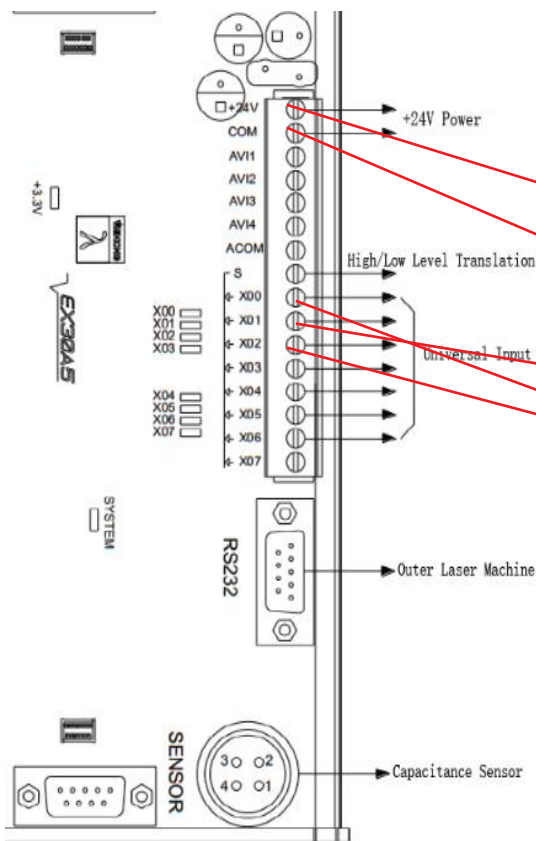
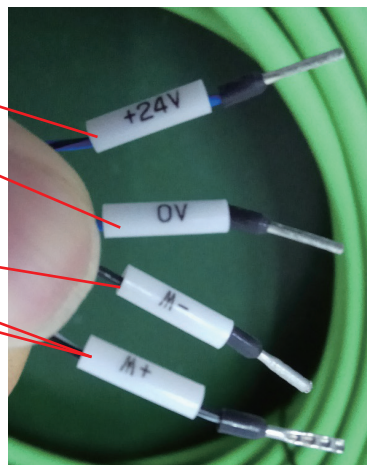


Fig 4-2 Expansion Terminal Board EX30A5 in Laser Cutting System Connection Diagram



Connect +24V Cable to
"+24V" Port & S Port on
the Board



Connect W- to "x01" Port;
Connect W+ to "x00" & "x02"

EX30A5 in Laser Cutting System Connection Diagram

Limit Logic Parameter Setting

EX00	P	00072	E,F:16ms S:4ms	W Axis Pos Limit
EX01	P	00073	E,F:16ms S:4ms	W Axis Neg Limit
EX02	P	00074	E,F:16ms S:4ms	W Axis Null Point

Weihong DB15 Driver Interface

SGDM Servo CN1 50P High-Density Plug

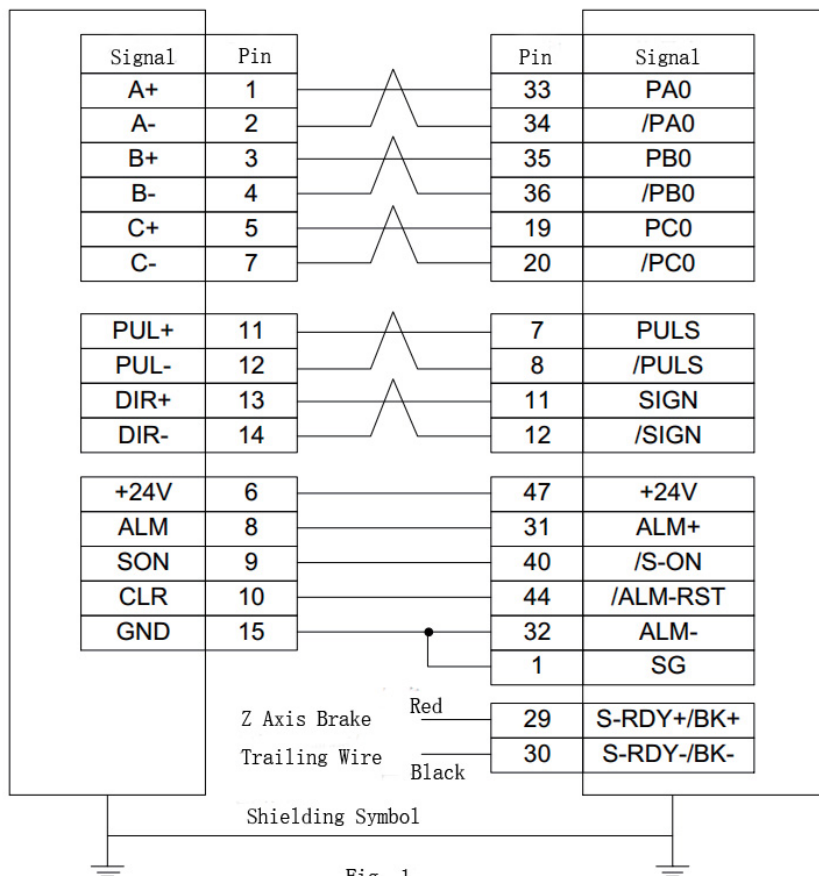


Fig. 1

Parameter	Value	Parameter	Value	Parameter	Value
PN000	0010	PN170	1400	PN402	50
PN00B	0101	PN200	0000	PN403	50
PN100	120	PN20E	4194304	PN406	100
PN102	180	PN210	2500	PN50A	8100
PN103	100	PN212	2500	PN50B	6548

Weihong DB15 Driver Interface

SGDM Servo CN1 50P High-Density Plug

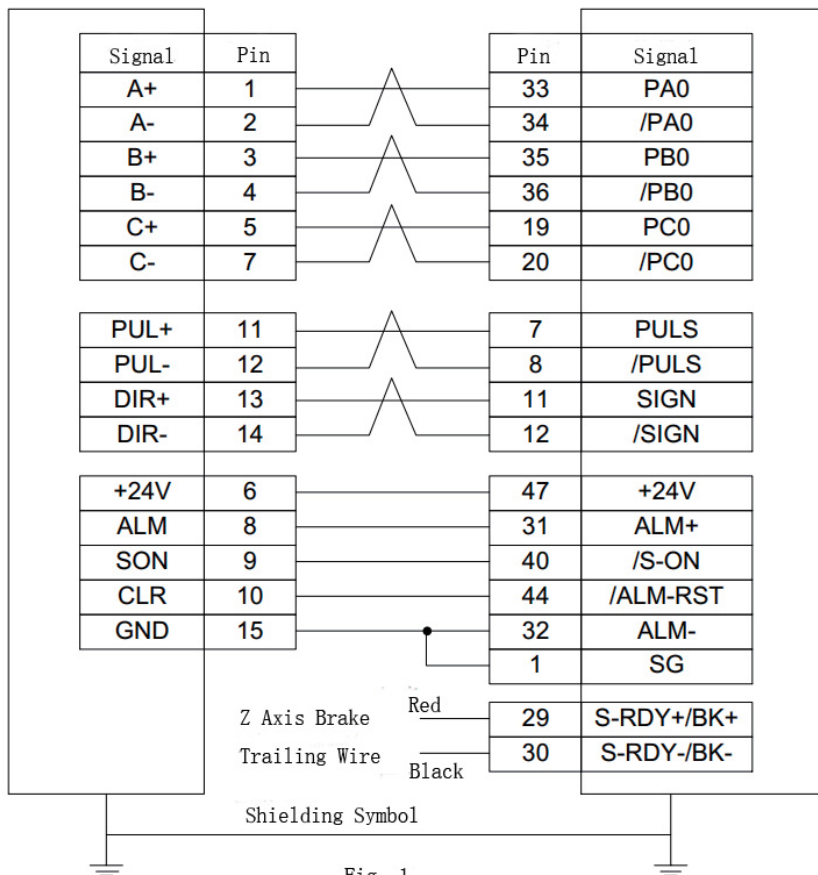
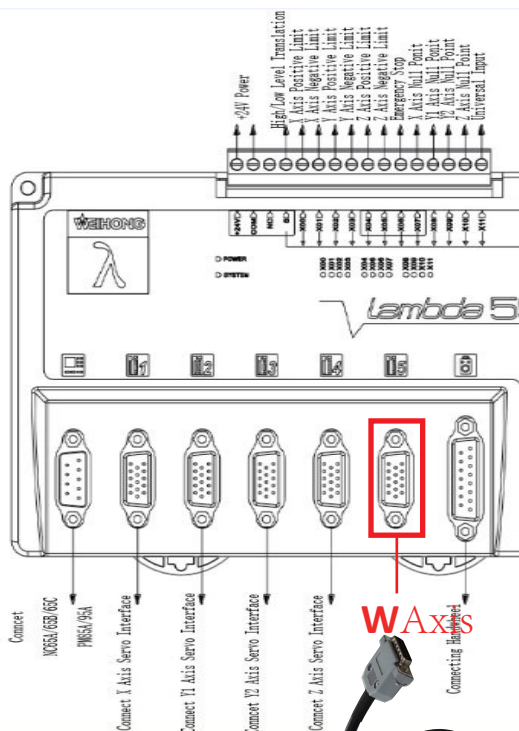


Fig. 1

Parameter	Value	Parameter	Value	Parameter	Value
PN000	0011	PN170	1400	PN402	50
PN00B	0101	PN200	0000	PN403	50
PN100	120	PN20E	4194304	PN406	100
PN102	180	PN210	2500	PN50A	8100
PN103	100	PN212	2500	PN50B	6548



Parameter Setting

AllParam

OperateParam

AxisParam

ProgramParam

OtherParam

No.	Name	Value	Unit	Effect Time	Parameter description
1.0 Manu					
N01	Rapid jogging speed	18000.000	mm/min	Immediately	The speed under Rapid-Jog mo
N02	Jogging speed	6000.000	mm/min	Immediately	The default speed under Jog r
N03	Stepping speed	6000.000	mm/min	Immediately	The default speed under Stepp
1.1 FixedPoint					
N04	X machine coordinate	0.000	mm	Immediately	X machine coordinate of the fi
N05	Y machine coordinate	0.000	mm	Immediately	Y machine coordinate of the fi
1.2 Bkref					
N06	Force homing befor...	NO		Immediately	Force homing before machining
N07	Limit switch used as...	YES		Immediately	Whether the limit switch can be
N08	X direction in coarse...	-1		Immediately	The moving direction of X in co
N09	Y direction in coarse...	-1		Immediately	The moving direction of Y in co
N10	Z direction in coarse...	1		Immediately	The moving direction of Z in co
N11	X speed in coarse p...	6000.000	mm/min	Immediately	The feeding speed of X in coar
N12	Y speed in coarse p...	6000.000	mm/min	Immediately	The feeding speed of Y in coar
N13	Z speed in coarse p...	1800.000	mm/min	Immediately	The feeding speed of Z in coar
N14	X speed in precision...	600.000	mm/min	Immediately	The feeding speed of X in prec
N15	Y speed in precision...	600.000	mm/min	Immediately	The feeding speed of Y in prec

Permission

☒ Operator
 ☒ Manufacture

Set Password

Limit Logic Parameter Configuration

EX00	P	00072	E,F: 16ms S:4ms	Positive Limit of Axis W
EX01	P	00073	E,F: 16ms S:4ms	Negative Limit of Axis W
EX02	P	00074	E,F: 16ms S:4ms	Axis W Zero

W Axis Configuration (NC30)

1. Default direction of N59 & N20 are opposite, when N59 is 1, N20 should be -1.
2. Default rollback direction is positive direction.

2.3 WAxisParam						
AxisParam	N64	Axis direction	1		Restart	Axis direction (Positive: 1, Neg
	N65	Pulse equivalent	0.0001	mm/p	Restart	The pulse equivalent of axis; r
	N66	Check worktable str...	YES		Restart	Whether to check worktable st
ProgramParam	N67	Lower limit of workt...	-9.500	mm	Restart	Lower limit of worktable stroke
	N68	Upper limit of workt...	9.000	mm	Restart	Upper limit of worktable stroke
OperateParam	N68	Upper limit of workt...	1000.000	mm	Restart	Upper limit of worktable stroke
	N69	Starting speed	0.000	mm/min	Restart	Starting speed; range: [0, Ma
	N70	Single axis accelera...	3000.000	mm/s^2	Immediately	Single axis acceleration in posit
	N71	G00 Jerk	100000....	mm/s^3	Immediately	The rate of change of single a
AxisParam	N72	Max. speed	3000.000	mm/min	Immediately	Maximum speed; range: (0, Ma
	N73	Manual feed acceler...	400.000	mm/s^2	Immediately	Control the acceleration of man
	N74	Manual feed jerk	10000.000	mm/s^3	Immediately	Control the jerk of manual jog
	N75	Jogging speed	120.000	mm/min	Immediately	The default speed under Jog m
WAxisParam	N20	W direction in coars...	-1		Immediately	The moving direction of W in co
	N21	W speed in coarse ...	5.000	mm/min	Immediately	The feeding speed of W in coa
	N22	W speed in precisio...	1.000	mm/min	Immediately	The feeding speed of W in pre
	N23	Back space of W	9.000	mm	Immediately	The additional displacement of
	N70	Single axis accelera...	400.000	mm/s^2	Immediately	Single axis acceleration in posit
	N71	G00 Jerk	100000....	mm/s^3	Immediately	The rate of change of single a

Focus Control

☐ Parameter

Locate speed: mm/min

Jog speed: mm/min

Focus offset: (Focus pos after home)

Control

Focus Pos:

W Axis Configuration (NC60)

1.Default direction of N59 & N20 are opposite, when N59 is 1, N20 should be -1.

2.Default rollback direction is positive direction.

2.3 WAxisParam						
AxisParam	N64	Axis direction	1		Restart	Axis direction (Positive: 1, Neg
	N65	Pulse equivalent	0.000225	mm/p	Restart	The pulse equivalent of axis; r
	N66	Check worktable str...	YES		Restart	Whether to check worktable st
	N67	Lower limit of workt...	-16.000	mm	Restart	Lower limit of worktable stroke
	N68	Upper limit of workt...	16.000	mm	Restart	Upper limit of worktable stroke
ProgramParam	N68	Upper limit of workt...	1000.000	mm	Restart	Upper limit of worktable stroke
	N69	Starting speed	0.000	mm/min	Restart	Starting speed; range: [0, Ma
	N70	Single axis accelera...	400.000	mm/s^2	Immediately	Single axis acceleration in posit
	N71	G00 Jerk	100000....	mm/s^3	Immediately	The rate of change of single a
	N72	Max. speed	3000.000	mm/min	Immediately	Maximum speed; range: (0, M
	N73	Manual feed accelera...	400.000	mm/s^2	Immediately	Control the acceleration of mai
	N74	Manual feed jerk	10000.000	mm/s^3	Immediately	Control the jerk of manual jog
OtherParam	N75	Jogging speed	120.000	mm/min	Immediately	The default speed under Jog r
	N75	Jogging speed	120.000	mm/min	Immediately	The default speed under Jog r
AxisParam	N20	W direction in coars...	-1		Immediately	The moving direction of W in co
	N21	W speed in coarse ...	5.000	mm/min	Immediately	The feeding speed of W in coa
	N22	W speed in precisio...	1.000	mm/min	Immediately	The feeding speed of W in pre
	N23	Back space of W	16.500	mm	Immediately	The additional displacement of
	N70	Single axis accelera...	400.000	mm/s^2	Immediately	Single axis acceleration in posit
	N71	G00 Jerk	100000....	mm/s^3	Immediately	The rate of change of single a

Focus Control

83

Parameter ☐

Locate speed: mm/min

Jog speed: mm/min

Focus offset: (Focus pos after home)

Control

Focus Pos:

Parameter Setting

AllParam

OperateParam

AxisParam

ProgramParam

OtherParam

No.	Name	Value	Unit	Effect Time	Parameter description
N121	Y1Y2 Dynamic Toler...	3.000	mm	Immediately	When Y1Y2 axis is dynamic, it
N122	Auto clear workcoor	0		Immediately	Whether to clear workcoor wh
N123	Scan cutting type	1		Restart	1: 1st generation-LD55; 2: 2n
N124	Wiring of S port of t...	1		Restart	0: com; 1: 24V
N125	Laser on lead time f...	2		Immediately	It can be set large when some
N126	Laser off lag time fo...	1		Immediately	It can be set large when some
N127	The buffer count fo...	95		Immediately	Modify the parameter when cu
N128	Empty Move Collide ...	100	ms	Immediately	Control the sensitivity of part t
N129	Cutting Collide Sens...	200	ms	Immediately	Control the sensitivity of part t
N130	Enable Exchange W...	NO		Restart	Whether to enable exchange v
N131	Enable auto exhaust	NO		Immediately	Whether to enable auto exhau
N132	Disable Exhaust Delay	1000	ms	Immediately	Delayed time before disabling e
N133	Start position of ex...	0.000	mm	Immediately	Starting position of exhausting
N134	Exhausting interval1	1000.000		Immediately	The length of No.1 exhausting
N135	Exhausting interval2	1000.000		Immediately	The length of No.2 exhausting
N136	Exhausting interval3	1000.000		Immediately	The length of No.3 exhausting
N137	Back distance at br...	2.000	mm	Immediately	The retreat distance at breakp
N138	Enable focus control	YES		Immediately	Whether to enable focus contr

Permission

☒ Operator
 ☒ Manufacture

Set Password

Name: Enable focus control Value: YES Unit: Effect Time: Immediately

Parameter description: Whether to enable focus control.

Choose YES for N138; then the Forth Axis(W) will be enable.

Focus Control

Parameter ☒

Locate speed: 1200.000 mm/min

Jog speed: 120.000 mm/min

Focus offset: 0.000 (Focus pos after home)

Control

Focus Pos: 0.000

+

-

0

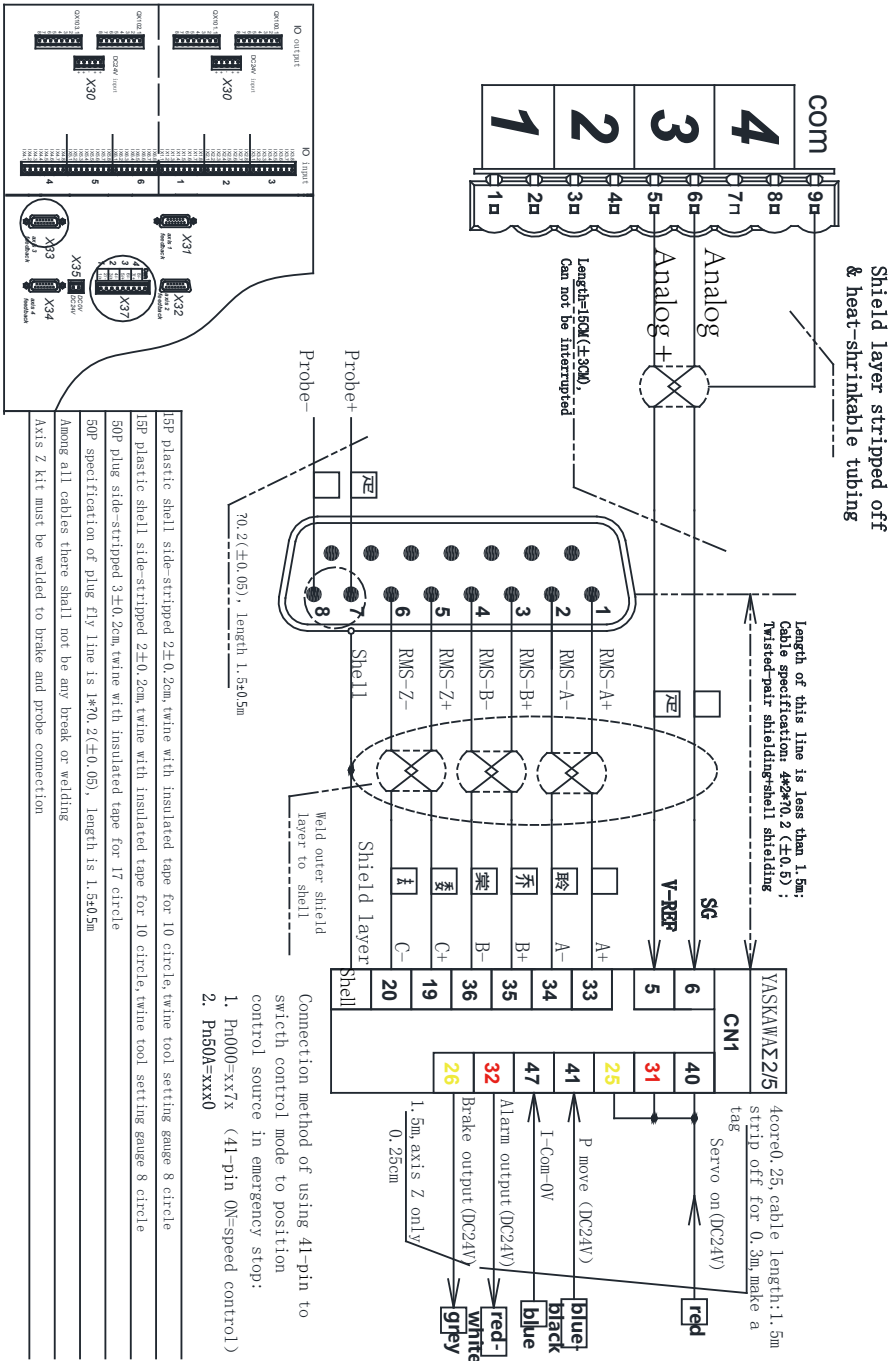
Locate

Home

Stop

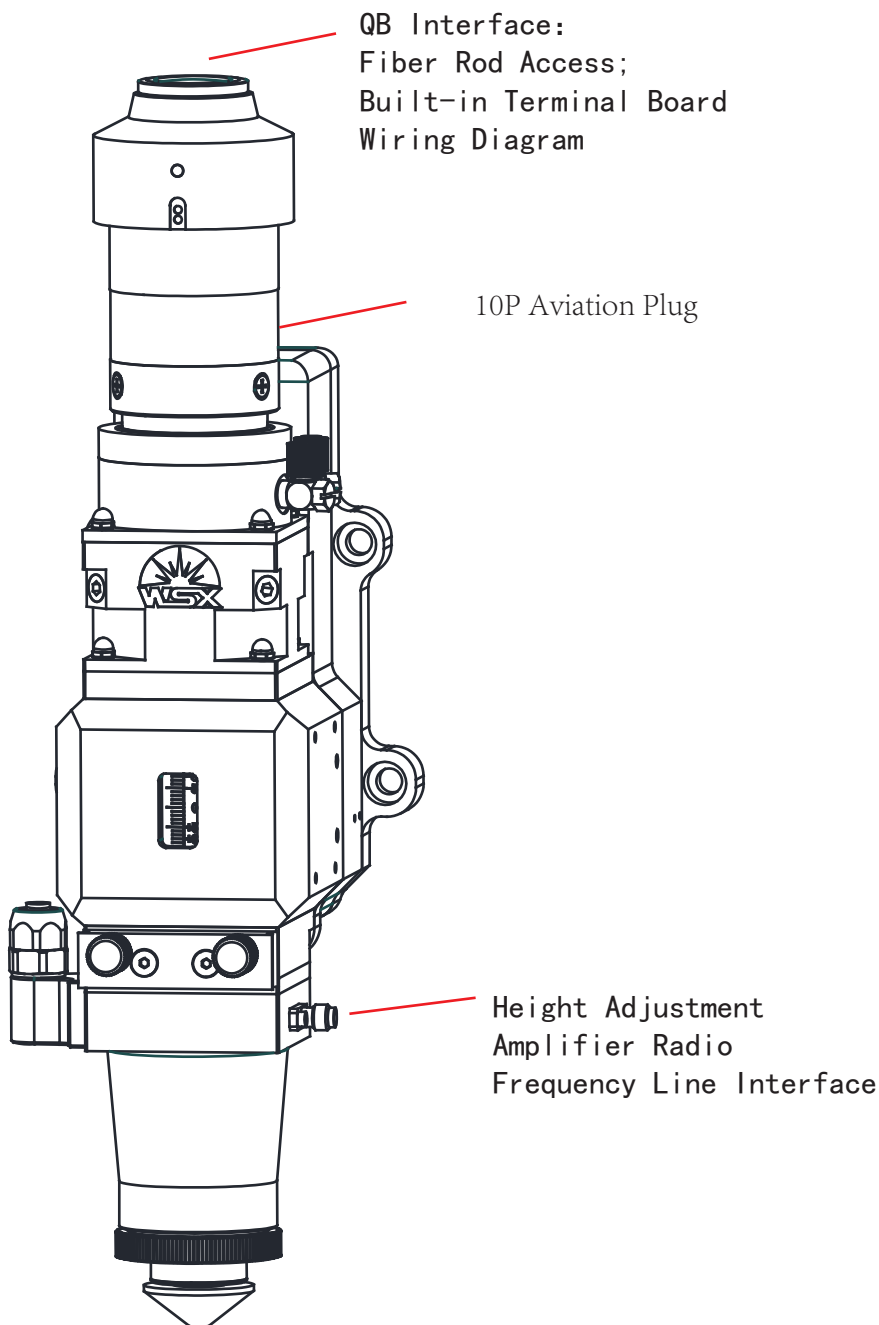
1. Target Focus Input Box & Focus Position Display Box
2. Execute Button
3. Negative Focus Moving
4. Positive Focus Moving
5. Rollback
6. Stop

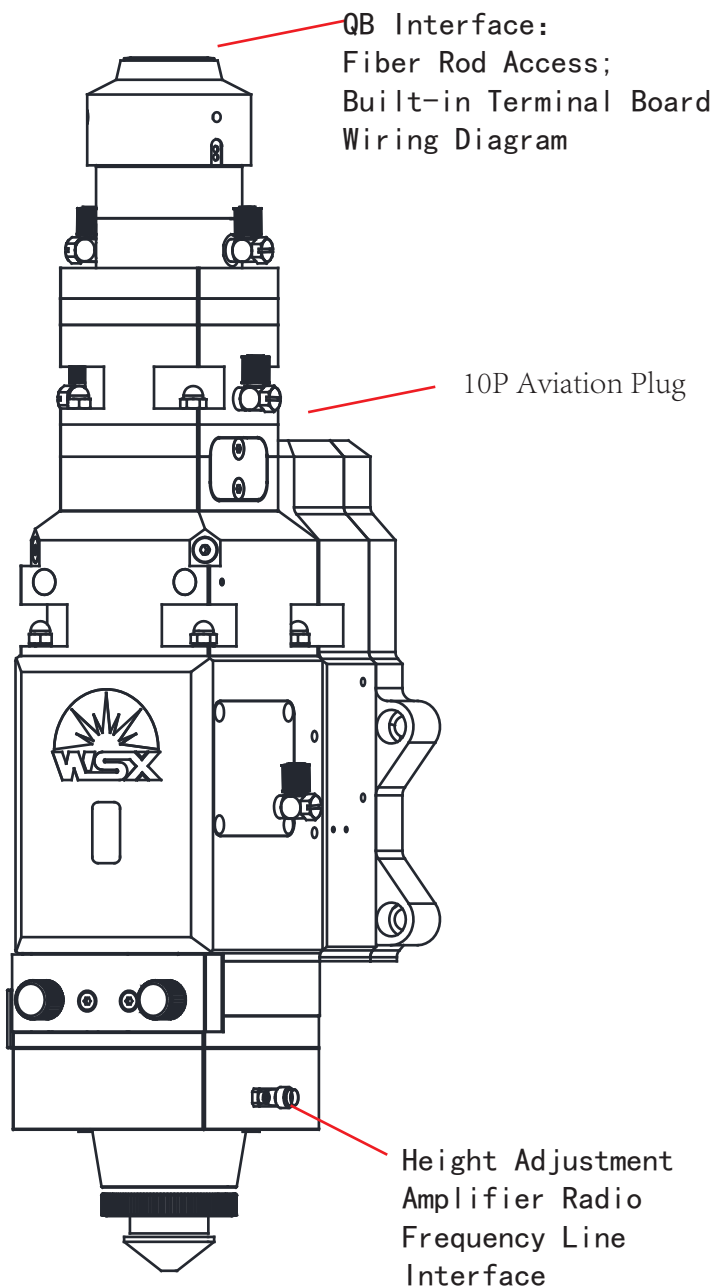
Malfunction	Reason Analysis	Method
A. 0b0	Servo ON instruction invalid alarm, after executing auxiliary function of electrifying the motor, servo NO input (/S-ON) signal is inputted from host device.	Electrify again
A. 100	1.Check whether it is short circuited between U V W, check whether it is short circuited between U V W to ground (outer shell) 2.U V W phase sequence is incorrect.	1.If short circuited, replace cables or send it to factory for repair. 2.Adjust phase sequence. Check according to P8.
A. 410	1.L1C / L2C has not connect to AC power supply. 2.Abnormal voltage, or driver damaged by short circuited.	1.Wiring according P6. 2.Send it to factory for repair.
A. 710	Overload, limit invalided or disconnected make the mechanical parts get to the end.	Check limit signal according P14 & P21.
A. 840	1.Encoder data alarm 2.Abnormal voltage leads to encoding module damage.	1.Check whether encoding cable connection is normal. 2.Send it to factory for repair.
A. C90	Encoder and servo unit can not communicate.	1.Check whether encoding cable connection is normal. 2. Replace cable. 3. Send it to factory for repair.
Positive & negative limit both alarm	1.Software logic is incorrect. 2.Limit signal cable connection is incorrect.	1.Reverse limit logic. 2.Check according P14 & P21.





NC12,NC30B,NC60B

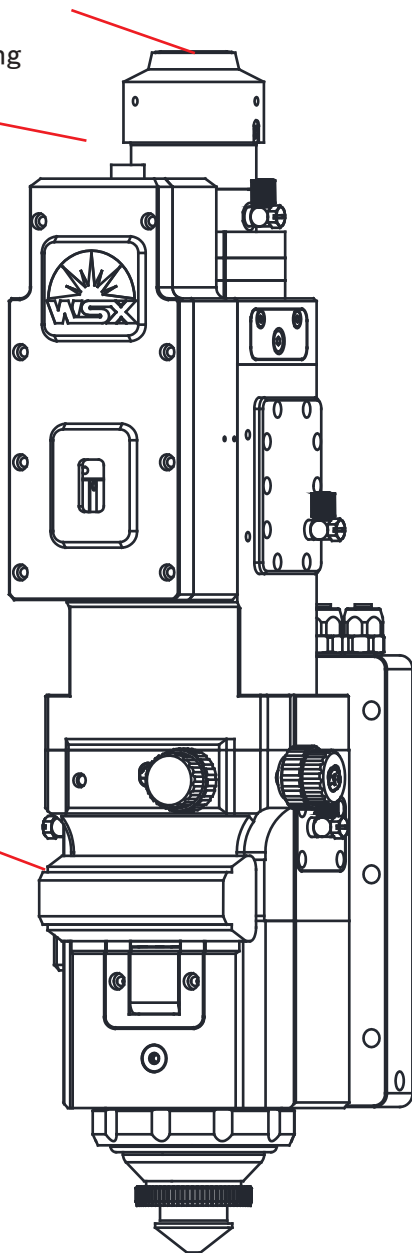




QB Interface;
Fiber Rod Access;
Built-in Terminal Board Wiring
Diagram

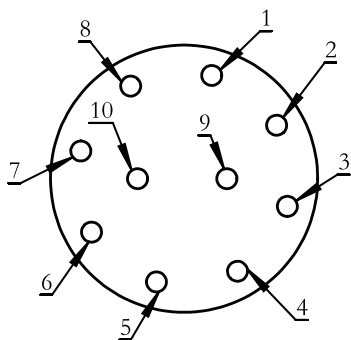
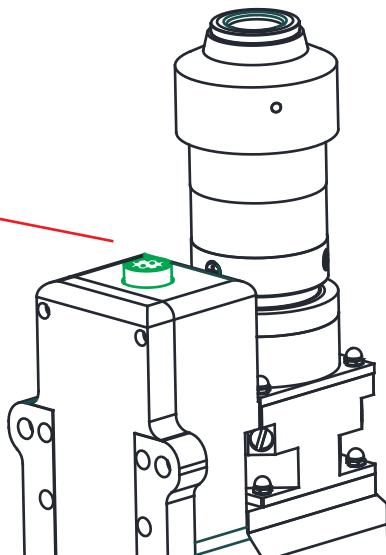
10P Aviation Plug

Height Adjustment
Amplifier Radio
Frequency Line
Interface





10P Aviation Plug



10P Aviation Plug	
Pin	Signal
1	Null
2	A+(Stepper Motor A Phase Power Line)
3	A-(Stepper Motor A Phase Power Line)
4	B+(Stepper Motor B Phase Power Line)
5	B-(Stepper Motor B Phase Power Line)
6	+24V(Approach Switch Power Line)
7	0V(Approach Switch Power Line)
8	W+(Approach Switch Signal Line)
9	W-(Approach Switch Power Line)
10	Null

Motor Power Supply & Approach Swith Interface (Green)

Friendess

Friendess D15 Servo Control Interface

Signal	Pin		Pin
PUL+	1		PUL+ (CW+)
PUL-	9		PUL- (CW-)
DIR+	2		DIR+ (CW+)
DIR-	10		DIR- (CW-)
A+	3		Null
A-	11		Null
B+	4		Null
B-	12		Null
Z+	5		Null
Z-	13		Null
24V	8		Null
SON	6		Null
CLK	7		Null
ALM	14		Null
0V	15		GND

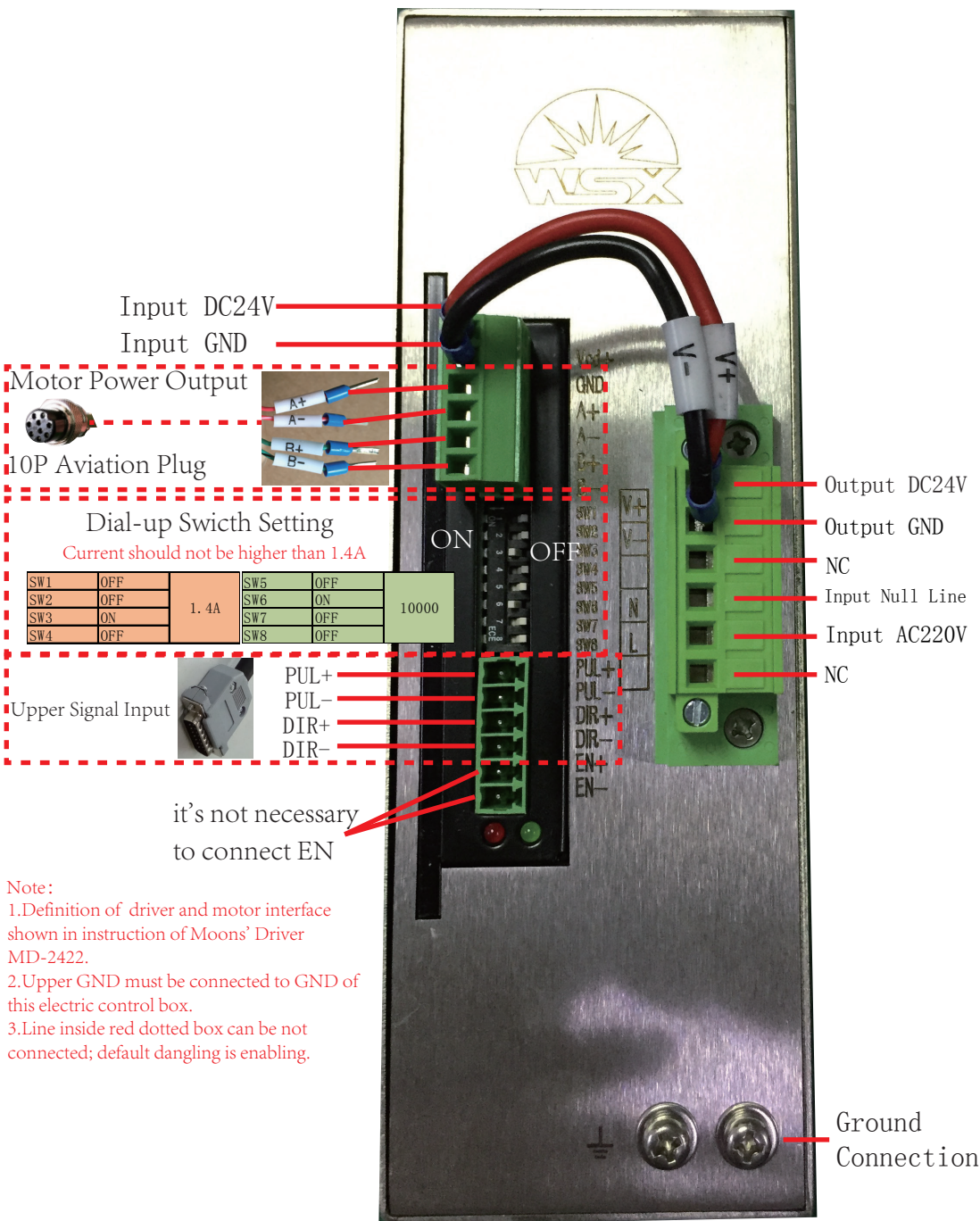


Weihong

Weihong D15 Servo Control Interface

Signal	Pin		Signal
PUL+	11		PUL+ (CW+)
PUL-	12		PUL- (CW-)
DIR+	13		DIR+ (CW+)
DIR-	14		DIR- (CW-)
A+	1		Null
A-	2		Null
B+	3		Null
B-	4		Null
Z+	5		Null
Z-	7		Null
24V	6		Null
SON	9		Null
CLK	10		Null
ALM	10		Null
0V	15		GND

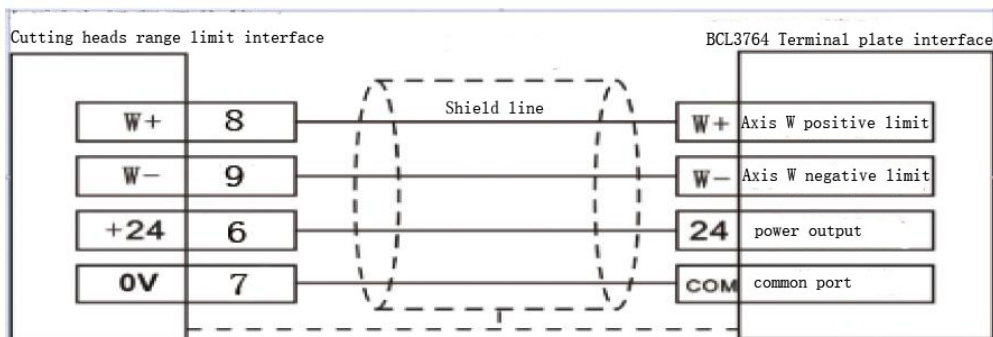




Note:

1. Definition of driver and motor interface shown in instruction of Moons' Driver MD-2422.
2. Upper GND must be connected to GND of this electric control box.
3. Line inside red dotted box can be not connected; default dangling is enabling.

Definition of laser focusing adjustment range limitation swicth connector



Connection of Limit Signal shown in Page 14 & Page 21

Focus Control

☒ Enable

☒ The fourth axis ☐ Precitec ☐ HighYAG ☐ BCL4516E [No Connection]

Focus Range: From to

Focus position at org:

Pulse Rate: Move need pulse

High Speed: Org Dir ☒ Pos ☐ Neg

Low Speed: ORG signal:

Rollback distance:

Jog speed:

Locate Speed:

acceleration:

Servo Alarm Logic

Negative Limit Logic:

Positive Limit Logic:

Note: 1.This parameter is default value; when user changes it, please avoid hard ware damage;

2. Please contact technician to get specific parameters of different lens combinations.

Machine Config Tool(BMC1604)

Import Save Machine Org Laser Follower Gas Focus Alarms IOList Inport Output ExtendIO BCP5045

Machine

General

Org

Devices

Laser

Follower

Gas

Focus Control

Edge Seek

Table Exchange

Auto Clean

IO

Alarms

Inports

Outports

Wireless pendant

Focus Control

☒ Enable

☒ The fourth axis
 ☐ Precitec
 ☐ HighYAG
 ☐ BCL4516E[No Connection]

Focus Range: From to

Focus position at org:

Pulse Rate: Move need pulse

High Speed: Org Dir ☒ Pos ☐ Neg

Low Speed: ORG signal:

Rollback distance:

Jog speed:

Locate Speed:

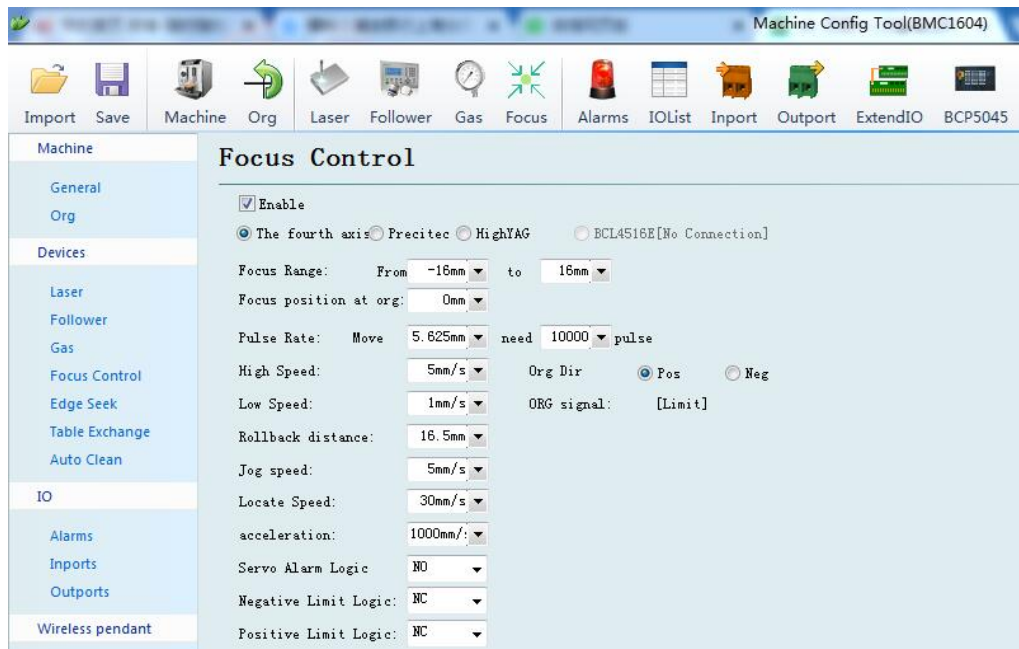
acceleration:

Servo Alarm Logic:

Negative Limit Logic:

Positive Limit Logic:

Note: 1.This parameter is default value; when user changes it, please avoid hard ware damage;
 2. Please contact technician to get specific parameters of different lens combinations.



Note: 1. This parameter is default value; when user changes it, please avoid hard ware damage;
 2. Please contact technician to get specific parameters of different lens combinations.

Parameter Setting

AllParam

OperateParam

AxisParam

ProgramParam

OtherParam

No.	Name	Value	Unit	Effect Time	Parameter description
1.0 Manu					
N01	Rapid jogging speed	18000.000	mm/min	Immediately	The speed under Rapid-Jog m
N02	Jogging speed	6000.000	mm/min	Immediately	The default speed under Jog m
N03	Stepping speed	6000.000	mm/min	Immediately	The default speed under Stepp
1.1 FixedPoint					
N04	X machine coordinate	0.000	mm	Immediately	X machine coordinate of the fi
N05	Y machine coordinate	0.000	mm	Immediately	Y machine coordinate of the fi
1.2 Bkref					
N06	Force homing befor...	NO		Immediately	Force homing before machining
N07	Limit switch used as...	YES		Immediately	Whether the limit switch can be
N08	X direction in coarse...	-1		Immediately	The moving direction of X in co
N09	Y direction in coarse...	-1		Immediately	The moving direction of Y in co
N10	Z direction in coarse...	1		Immediately	The moving direction of Z in co
N11	X speed in coarse p...	6000.000	mm/min	Immediately	The feeding speed of X in coar
N12	Y speed in coarse p...	6000.000	mm/min	Immediately	The feeding speed of Y in coar
N13	Z speed in coarse p...	1800.000	mm/min	Immediately	The feeding speed of Z in coar
N14	X speed in precision...	600.000	mm/min	Immediately	The feeding speed of X in prec
N15	Y speed in precision...	600.000	mm/min	Immediately	The feeding speed of Y in prec

Permission

Name: Limit switch used as home switch Value: YES Unit: Effect Time: Immediately

☒ Operator

☒ Manufacture

Parameter description: Whether the limit switch can be used as home switch as well. That is, exclusive home switch can be absent, and limit switch signal serves as home switch signal in homing.

Limit Logic Parameter Configuration

 EX00	P	00072	E,F:16ms S:4ms	Positive Limit of Axis W
 EX01	P	00073	E,F:16ms S:4ms	Negative Limit of Axis W
 EX02	P	00074	E,F:16ms S:4ms	Axis W Zero

W Axis Configuration (NC12)

1. Default direction of N59 & N20 are opposite, when N59 is 1, N20 should be -1.
2. Default rollback direction is positive direction.

AxisParam		2.3 WAxisParam					
	N64	Axis direction	1		Restart	Axis direction (Positive: 1, Negative: -1)	
	N65	Pulse equivalent	0.000225	mm/p	Restart	The pulse equivalent of axis; range: (0, Max)	
	N66	Check worktable str...	YES		Restart	Whether to check worktable stroke	
ProgramParam	N67	Lower limit of workt...	-7.500	mm	Restart	Lower limit of worktable stroke	
	N68	Upper limit of workt...	7.000	mm	Restart	Upper limit of worktable stroke	
OperatorParam		N68	Upper limit of workt...	1000.000	mm	Restart	Upper limit of worktable stroke
	N69	Starting speed	0.000	mm/min	Restart	Starting speed; range: [0, Max]	
	N70	Single axis accelera...	400.000	mm/s^2	Immediately	Single axis acceleration in posit	
	N71	G00 Jerk	100000....	mm/s^3	Immediately	The rate of change of single a	
AxisParam	N72	Max. speed	2000.000	mm/min	Immediately	Maximum speed; range: (0, Ma	
	N73	Manual feed accelera...	1000.000	mm/s^2	Immediately	Control the acceleration of ma	
	N74	Manual feed jerk	5000.000	mm/s^3	Immediately	Control the jerk of manual jog	
	N75	Jogging speed	120.000	mm/min	Immediately	The default speed under Jog m	
W Axis Param	N20	W direction in coars...	-1		Immediately	The moving direction of W in c	
	N21	W speed in coarse ...	5.000	mm/min	Immediately	The feeding speed of W in coa	
	N22	W speed in precisio...	1.000	mm/min	Immediately	The feeding speed of W in pre	
	N23	Back space of W	7.500	mm	Immediately	The additional displacement of	
		N70	Single axis accelera...	400.000	mm/s^2	Immediately	Single axis acceleration in posit
		N71	G00 Jerk	100000....	mm/s^3	Immediately	The rate of change of single a

Focus Control

☒ Parameter

Locate speed: mm/min

Jog speed: mm/min

Focus offset: (Focus pos after home)

Control

Focus Pos:

W Axis Configuration (NC30B)

- 1.Default direction of N59 & N20 are opposite, when N59 is 1, N20 should be -1.
- 2.Default rollback direction is positive direction.

2.3 WAxisParam						
OperateParam	N64	Axis direction	1		Restart	Axis direction (Positive: 1, Neg
	N65	Pulse equivalent	0.000225	mm/p	Restart	The pulse equivalent of axis; r
	N66	Check worktable str...	YES		Restart	Whether to check worktable st
	N67	Lower limit of workt...	-9.500	mm	Restart	Lower limit of worktable stroke
	N68	Upper limit of workt...	9.000	mm	Restart	Upper limit of worktable stroke
OperateParam	N68	Upper limit of workt...	1000.000	mm	Restart	Upper limit of worktable stroke
	N69	Starting speed	0.000	mm/min	Restart	Starting speed; range: [0, Max
	N70	Single axis accelera...	400.000	mm/s^2	Immediately	Single axis acceleration in posit
	N71	G00 Jerk	100000....	mm/s^3	Immediately	The rate of change of single a
AxisParam	N72	Max. speed	2000.000	mm/min	Immediately	Maximum speed; range: (0, M
	N73	Manual feed accelera...	1000.000	mm/s^2	Immediately	Control the acceleration of mai
	N74	Manual feed jerk	5000.000	mm/s^3	Immediately	Control the jerk of manual jog
	N75	Jogging speed	120.000	mm/min	Immediately	The default speed under Jog m
OperateParam	N20	W direction in coars...	-1		Immediately	The moving direction of W in co
	N21	W speed in coarse ...	5.000	mm/min	Immediately	The feeding speed of W in coa
	N22	W speed in precisio...	1.000	mm/min	Immediately	The feeding speed of W in pre
	N23	Back space of W	9.000	mm	Immediately	The additional displacement of
	N70	Single axis accelera...	400.000	mm/s^2	Immediately	Single axis acceleration in posit
	N71	G00 Jerk	100000....	mm/s^3	Immediately	The rate of change of single a

Focus Control

Parameter ☒

Locate speed: 30 mm/min
Jog speed: 5 mm/min
Focus offset: 0.000 (Focus pos after home)

Control

Focus Pos: 0.000

+

-

0

Locate

Home

Stop

W Axis Configuration (NC60B)

- 1.Default direction of N59 & N20 are opposite, when N59 is 1, N20 should be -1.
- 2.Default rollback direction is positive direction.

2.3 WAxisParam						
OperateParam	N64	Axis direction	1		Restart	Axis direction (Positive: 1, Neg
	N65	Pulse equivalent	0.0005625	mm/p	Restart	The pulse equivalent of axis; r
	N66	Check worktable str...	YES		Restart	Whether to check worktable st
	N67	Lower limit of workt...	-16.000	mm	Restart	Lower limit of worktable stroke
OperateParam	N68	Upper limit of workt...	16.000	mm	Restart	Upper limit of worktable stroke
	N68	Upper limit of workt...	1000.000	mm	Restart	Upper limit of worktable stroke
	N69	Starting speed	0.000	mm/min	Restart	Starting speed; range: [0, Max
	N70	Single axis accelera...	400.000	mm/s^2	Immediately	Single axis acceleration in posit
AxisParam	N71	G00 Jerk	100000....	mm/s^3	Immediately	The rate of change of single a:
	N72	Max. speed	2000.000	mm/min	Immediately	Maximum speed; range: (0, Ma
	N73	Manual feed accelera...	1000.000	mm/s^2	Immediately	Control the acceleration of mai
	N74	Manual feed jerk	5000.000	mm/s^3	Immediately	Control the jerk of manual jog
AxisParam	N75	Jogging speed	120.000	mm/min	Immediately	The default speed under Jog n
	N20	W direction in coars...	-1		Immediately	The moving direction of W in c
	N21	W speed in coarse ...	5.000	mm/min	Immediately	The feeding speed of W in coa
	N22	W speed in precisio...	1.000	mm/min	Immediately	The feeding speed of W in pre
	N23	Back space of W	16.500	mm	Immediately	The additional displacement of
	N70	Single axis accelera...	400.000	mm/s^2	Immediately	Single axis acceleration in posit
	N71	G00 Jerk	100000....	mm/s^3	Immediately	The rate of change of single a:

Focus Control

Parameter ☒

Locate speed: mm/min
Jog speed: mm/min
Focus offset: (Focus pos after home)

Control

Focus Pos:

Parameter Setting

AllParam

OperateParam

AxisParam

ProgramParam

OtherParam

No.	Name	Value	Unit	Effect Time	Parameter description
N121	Y1Y2 Dynamic toler...	3.000	mm	Immediately	When Y1Y2 axis is dynamic, it
N122	Auto clear workcoor	0		Immediately	Whether to clear workcoor wh
N123	Scan cutting type	1		Restart	1: 1st generation-LD5S; 2: 2n
N124	Wiring of S port of t...	1		Restart	0: com; 1: 24V
N125	Laser on lead time f...	2		Immediately	It can be set large when some
N126	Laser off lag time fo...	1		Immediately	It can be set large when some
N127	The buffer count fo...	95		Immediately	Modify the parameter when cu
N128	Empty Move Collide ...	100	ms	Immediately	Control the sensitivity of part t
N129	Cutting Collide Sens...	200	ms	Immediately	Control the sensitivity of part t
N130	Enable Exchange W...	NO		Restart	Whether to enable exchange v
N131	Enable auto exhaust	NO		Immediately	Whether to enable auto exha
N132	Disable Exhaust Delay	1000	ms	Immediately	Delayed time before disabling e
N133	Start position of ex...	0.000	mm	Immediately	Starting position of exhausting
N134	Exhausting interval1	1000.000		Immediately	The length of No.1 exhausting
N135	Exhausting interval2	1000.000		Immediately	The length of No.2 exhausting
N136	Exhausting interval3	1000.000		Immediately	The length of No.3 exhausting
N137	Back distance at br...	2.000	mm	Immediately	The retreat distance at breakp
N138	Enable focus control	YES		Immediately	Whether to enable focus contr

Permission

☒ Operator
 ☒ Manufacture

Set Password

Name: Enable focus control Value: YES Unit: Effect Time: Immediately

Parameter description: Whether to enable focus control.

Choose YES for N138; then the Forth Axis(W) will be enable.

Focus Control

Parameter ☒

Locate speed: 1200.000 mm/min

Jog speed: 120.000 mm/min

Focus offset: 0.000 (Focus pos after home)

Control

Focus Pos: 0.000

+

-

0

Locate

Home

Stop

1. Target Focus Input Box & Focus Position Display Box
2. Execute Button
3. Negative Focus Moving
4. Positive Focus Moving
5. Rollback
6. Stop



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