

JHY welding robot series **WELDING MANUAL INSTRUCTIONS**



Wuxi Jihoyen Industrial Automation Co.,Ltd.

www.jhyrobotic.com



Catalog

	Catalog	2
1.Use	r interface introduction	3
1.1	Left function menu area	3
1.2	Right quick-operating area:	4
	1.3 Head column	5
1.4	Manual operating area	6
2 Bas	ic operation	7
2.1	Some basic operations	7
	2.1.1 Enter the system	7
	2.1.2 Editing program in right area	8
2.2	TCP correction1	1
	2.2.1 Tool coordinate correction12	2
	2.2.2 Origin correction1	5
3. We	Iding technology19	9
3.1	Straight line welding	9
3.2	Round arc welding2	5
4. Ro	oot accessories device operation3	3
4.1	The additional shaft	3
4.2	IO set	5
4.3	. Torch clean station programming4	1
4.4	. Automatic torch cleaning programming54	4
4.5	The usage of reservation box59	9



1.User interface introduction

First,open the teach pendant,now its in maintain mode,Press "Auto mode",only all the status numbers show as "23",then change into "Teach mode".

LNC	chinary Wor	id <u>Y 1196.60 B</u> Z 701.88 C	0.00 U 0.00 0.00 V 0.00 0.02 W 0.00	free TEST	T.tch 19. S.O % arn	m Rese
Sem 1	Joint	Status	JointFos	Call Pos		-
prog]1	23	-12.429	0.000	ServoOn	-
	J2	23	-6.534	0.000		P
point	J3	23	3.650	0.000	Auto Set Pos	64
Param	j4	23	0.001	0.000		cottes
Syner	J5	23	87.117	90.000	To Call Pos	1 C
gy	J6	23	-12.451	0.000		0
Track					Acc Action Time	0
sys					749 6 22	1 Ke
A CONTRACTOR					Depat Action Time	E

1.1 Left function menu area





F1.F2: User-defined button functions

Lock: When you click lock, the screen is locked and can not be edited. click the lock symbol on the screen and input "0" to release the lock.

Maintain: Perform operation control of a single motor. Usually used for the time of d ebugging.

Auto: Used to launch a program or to operate a specific action on each page.

Teach: Move with the coordinate system direction such as "world", "work", "tool" and "joint" as a reference.

When you need to switch the mode, switch one by one.



1.2 Right quick-operating area:

"+" : Speed increase

"-" : Speed reduce

"F%" Speed to 50%

In Auto mode, adjust the percentage of speed during auto matic operation.

In Maintain/Teach mode, adjust the percentage of speed when the machine is manually operated.



These buttons shows as their word meaning.

Go on: In the automatic mode, program execution can be performed Pause: In the automatic mode, make the running program enter the pause state Finish: In the automatic mode, the executed program stops running

1.3 Head column

USB interface: it's used for input files, backup program, and update the system.

Hand-wheel: This function equals to the shortcut key,press the "MPG" button in the b ottom,light up any direction button and rotate the hand-wheel then it can control the r obot joints to move.Or you can display the program in Auto mode by using hand-whe el. (in this way you can control the moving speed and avoid welding torch collision).

Emergency:press down the emergency button,the robot out of electric,the alarm sign appears on screen.then rotate the emergency button, click "Reset" to clear the current alert warning.





1.4 Manual operating area



Use to select the coordinate, continuity, and speed ratio of the moves, then press the move button to move manually.

Alarm/Reset: The light signal shows the current alarm and the button reset system (equivalent to the reset button on the screen),click it to clear the current alarm.

JOINT, TOOL, WORK, WORLD coordinates

Among them, JOINT and WORLD coordinates are the most commonly used.

Under the **WORLD** coordinate,these buttons from X+,X- ...to A+,A- stands for X axis, Y axis, Z axis, A axis, B axis, C axis.

Under the **TOOL** coordinate, these buttons X+,X- ...to A+,A- stands for Robot J1 axis, J2 axisJ6 axis, rX±...rZ± stands for additional axis J7,J8,J9

CONT button means continue, when you press it, move the robot joints, then the joints will move continually.

x1%,x10%,x100% these means the speed increased by 1%,10% and 100%.



2 Basic operation

2.1 Some basic operations

2.1.1 Enter the system

click "LNC", enter into the main menu, these 5 levels means different permissions.

L	N) Dpe	-1 rator	Norld X Z -2	0.00 A 0.00 B 210.00 C	111.56 U 47.22 V 74.89 W	0.00 0.00 0.00	Ready 0.2 %	Pos	IO	Alarm Tarnin	Reset EN	IG
Re C	N	ow Lev	/el	0 [Opera	ator]		/chLoc	VO:	9.00	Powe	rOn	\$	5
		User 0		Descript Operat	ion or		Decerd			Cofe	V09.00		*
S1		1		Manag	er	Now Leve	el 1 [l	Manager]		MchLock		PowerOr	
P		2		Design	er		Log O	ut		Record	Coor	Safe Pos	•
		3		Machin	ery	New Pwd		Cha	nge	Recipe	Transfe	Network	x
-		4		Syster	n	Confirm							

Here are the passwords for each level below:

No.0 Operator.when you open the system, its in Operator system.

- No.1 Manager. Password:1111
- No.2 Designer. Password: 2222
- No.3 Machinery. Password:3333

We usually use the No.3 Machinery level to operate.



Now Level 3 [Machin	iery]	V09.05 200709	7200-72	00-1-9-8	=
		MchLock	Servo	Reboot	
Log Out		Install	Coor	Record	Safe Pos
Password		Recipe	Transfer	Network	Language
New Pwd	Change	Option	IO Set	Comm	A
Confirm					Cally
Default HMI Sele	ect				T ON

After entered Machinery level, press "LNC" Logo at the left top corner, you can see a program list which contains the one you saved last time. If you want to see all the pr ogram lists, click the program name on the top, then you can see it, click one you need and open it.

	NC Aachinan	-12.42 Ad -6.53 A5 3.45 A6	0.00 U 0.00 G free 87.11 V 0.00 0.0 0.0 0.0	EST.tch	Mainta 5.0	in Vater Marnin Rese
		File Opra	ite		Filter	
	Filename	Size	DateTime		_	
1	1000.tch	300	週四7月911:05:36 2020	^	urrent Name	EST.tch
2	1001.tch	300	週四 7月 9 11:05:56 2020			
-	1002.tch	600	週四 7月 9 11:08:46 2020		Dalata Ca	Indiana di la
	1003.tch	800	週四7月911:28:12 2020		Delete Se	lected file
	101.tch	1600	遇五 7月 17 10:53:00 2020		TEST	tch
	1111.tch	1300	遇五 7月 17 09:04:16 2020		Save as	Create
	2YUAN.tch	800	遇三 7月 15 14:53:52 2020	1	R	create
A DO	9999.tch	3000	遗三 7月 15 14:53:52 2020	V	Cancel	Open
			and the second division of the second divisio			

2.1.2 Editing program in right area

First area, block operating (BlockOp), like cut/cope/paste...For example,



NC	0 -1 Motor A2 Aachinary - A3	-6.53 A5 87.1 3.65 A6 -11,5		0.00	free 0.0	0.0 TE	ST.tch	10.	Maintain 5.0 %	Marm arnin	Rese
ARW.	TEST.tch	Save	B	lock	Rec	ord Bas	icCmd E	xtCmd	ProdAct	0	1
prog				1	1 3	egin Ro	ov End I	Row	All		-
point				Cut		Сору	Past	e	Mirror	~	
aram				x 0	Y	0	Z 0	Of	fset	^	colle
Syner				FastSp	eed	athSpe	ec So	ft	Wait	Near	0
Track				Desc	Find	0	I O	R	Jump	Ň	
sys				O Fi	le	0	End	E	xport	¥	-
sys	Marine .			O Fi	le	0	End	E	xport	Y	

Copy: If you want to copy one line or several lines order, input "Begin row" number, "E nd row" number then click "Copy", choose the blank area below then click "Paste".

Copy just one line, click "Copy" below.

Cut: If you want to delete one line, it's ok to click "Cut"

If you want to delete all lines, just cick "all" then "Cut"

The second area (**Record**) is for the instructions you may use when creating a progr am, such as

- "Fast", moving from one point to another point directly.
- "Line", moving from one point to another point in straight line, this often used in str aight line welding bead.
- "Mid" the middle point of a semicircle, this often used in arc welding program.



LNC	0 - Machin	1 World	X 263 Y 126 Z 77	1.50 A	0.00 U 0.01 V -0.01 W	0.00	fre 0.0	e 0.0	TEST.t	tch 1	9.	NotReady	Alarm arnin	Rese
FRW	-	TEST.t	ch		Save	BlockOP	Rei	cord	BasicCr	md ExtC	md	ProdAct	7	10
Drog	1	Fast:Joi	nt Coo	r, PrvS	peed=30	Dutput I	60	00	On	Off	On	Puise		-
Pres	2	Fast:Joi	nt Coo	r, PrvS	ipeed=30							- 0110	~	1 3
point	3	Fast:Joi	nt Coo	r, Prvs	speed=30	OnAuto	oOff	1 0	nAuto	Off2 O	nAu	100113	~	-
	4	Arc ON	Arc O	N,		aram A	(#1	W	ait		T		~	collisi
Param	5	Line:W	orld Co	oor, Pr	vSpeed=4	0		10	000	Walt	1	nPos	Near	-0
Syner	6	Arc OF	F:Arc C) FF, _,		O_File	e					-		G
gy	7	Fast:Joi	nt Coo	or, Prvs	Speed=30	-	192	150	electic	oor	-	-	Y	-8
Track	*						-	C	en	Pass	12	Fast	¥	1
sys		1	12					3DC	urve	Mid		Line	Y	K
	Simple	G	Cut	Сору	Paste	Up D	n Bi	ackwa	ard Form	ard St	tep	ок	Detail	2

The third area (**BasicCmd**) this area is for some basic instructions such as Jump,Wai t,Set O,Set R,etc.

LNC	0 -1 achinar	Norid Y	-0.42 A 1125.73 B 757.03 C	U 00,0 V 00,0 W 00,0		0.00	fre 0.0	e 0.0	TEST	r.tch)9	+	5.0 %	Alarm arnin	Reset
S		TEST.tch		Save	Blo	ockOP	Re	cord	Basic	E-me	ExtCm	d	ProdAct	0	1 and
prog						Marl	k	Jun	np	IJ	mp	R	Jump		-
point						Wait	I	Wai	tR	Se	tO	S	et R	~	1 arc
Param						InPo	s	Wa	it	Ca	II G	-	Skill	Near	coffisien
Syner						DynP	os	Joint	Rec	Wor	IdRec	(Coor	V	
Track						2DCur	ve	Ce	en	Pi	ass		Fast	*	41 G AMERA
sys						2.5Cu	rve	3DC	urve	N	Aid		Line	Y	T ON I
	Simple	G	Cut Copy	y Paste	Up	Dr	1 3	ackwa	rc Fo	rward	Step	2	ОК	Detail	O HO MI D

The fourth area(ExtCmd) some external directions we may not use.

The fifth area(ProdAct) this area is for the welding technology,such as "Arc on"、"Arc off"、"Fishscale"



LNC	0 ·	-1 World Y 1125.54 8 Z 650.33 C	0.00 U 0.01 V -0.00 W	0.00	free 0.0 0.0	TEST.tch	19.	NotReady	Alarm arnin	Reset
5.	1	TEST.tch	Save	BlockOP	Record	BasicCmd	ExtCmd	Product	3	1º
Drog	1	Fast:Joint Coor, Prv	Speed=30	Arc	ing	Fish scale			R	drog
prug	2	Fast:Joint Coor, Prv	Speed=30	Arc	ON	Path End	lase	r Cmd		1
point	3	Fast:Joint Coor, Pry	Speed=30	Cont	Arc		laser	r Cmd2	\sim	1 - TT
-	*			Arc	OFF		lase	r coor	~	collegen
Param						2D Search	Auxili	ary Cmd	Naar	-0
Syner						3D Search		2	ivear	Cend
gy					- 19	Circle Search			V	0
Track				Round	welding				V	Qev
				Front	Rear				V	E.
sys				left	Right	1949	"		$\mathbf{\Sigma}$	Kair
-	Simple	G Cut Copy	Paste	Up Dr	n Baickw	arc Forward	Step	OK	Detai	20
SHOT	ONM	1.5	-	-		and the second division of	ACCR NO.	No. of Concession, Name		

2.2 TCP correction

How to do the TCP Correction?

What you need: something that can be fixed on ground without shaking and has a c usp.like below:





2.2.1 Tool coordinate correction

(including TX/TY Correction + TZ correction +ABC Correction)

I.TX,TY Correction:

LNC --Install--Tool --choose tool number.(pic attached,You can choose either one,for exam ple choose No. 2) --clear

HY	2 -1 World	× -0.00 A × 850.50 B	0 00 U 0 00 U	0000 0000	free 0.	tch	Q. Not?	eady Narm arnin	Reset
5	-	R105400	Offset X	Offset Y	Offset Z	Angle A	Angle 8	AngleC	- /
DIII	Tool	0	0.984	-80.691	376.474	1.702	-32.862	5.842	an
0.0	Tool2	1	5.227	-80.906	377.293	13.566	-28.547	-6.982	[1
08			0.000	0.000	0.000	0.000	0.000	0.000	-
aint	WorldDef		0.000	0.000	0.000	0.000	0.000	0.000	-Cally
		3	0.000	0.000		-	0.000	0.000	1
ram	ACTBIOCK	-	0.000	0.000	0.000	0.000	1 and 1	1 0000	
-	-	1000		0.000	0.000	0.000	0.000	- Crifes	
yner	Loading	Current	0.000	Assist	ant to get T	col Param		0.000	1
gy			-	Province in	1 2	Clear	OffX	10 Graden	
rack	Collision	TX, TY	×	1	0.000	Get Pos	off offy	0.000	F

1 Model V	-0.00 A	U 20.5	0.00	free 0.t	ich ,	Q. NotRe	ads Alarm arnin	Reset
m	Intel	[W] 2010	Offset Y	Offset 2	Angle A	Angle B	AngleC	1
lool	105400	0.984	-80.691	376.474	1,702	-32.862	5,842	110
	0	0.20	00.006	377.293	13.566	-28.547	-6.982	50
10012	1	5.227	-00.900	0.000	0.000	0.000	0.000	-
loridDef	2	0.000	0.000	0.000	0.000	0.000	0.000	Te alla
	3	0.000	0.000	0.000	0.000	0.000	0,000	1
ActBlock		0.000	0.000	0.000	0.000	0.000	0.000	-
Loading	Curren	0.000	1 0,000	0.000	0,000	DiffX	0.000	
Collision	TX T	T	V	0.00	Get P	ost offy	0.000	
Work Set	TZ	0.1	. 0.0	00.0	0 Get P	os2	Obtain	
	AB	C Max	TX and TY C	hange -> B+	0, E change	180.		



Then:

Prog Tod point Work Param ActB	ol Riose ol 0 ol 1 dDef 2 Block 3	400 Offset 0.984 5.227 0.000	X Offset Y 4 -80.691 7 -80.906 0 0.000	0.0 0.0 Offset 7 376,474 377.293	Angle A 1.702	Angle B -32.862	Ready Alarm .0 % arnin Angle C 5.842	Reset
prog Too point Work Param ActB	ol2 1 dDef 2 Block 3	0.984	4 -80.691 7 -80.906	376.474 377.293	Angle A 1.702	Angle B -32.862	S.842	neset
point Work Param ActB	dDef 2 Block 3	5.227 0.000	7 -80.906	377.293	1.702	-32.862	5.842	1
Param ActB	dDef 2 Block 3	0.000	0.000	311.293	13566		the second se	100
Param ActB	Block 3				10.000	-28.547	-6.982	oroș
Param Actb	slock	0.000	0.000	0.000	0.000	0.000	0.000	- arc
		0.000	0.000	0.000	0.000	0.000	0.000	-
Syner Load	ding 4	0.000	0.000	0.000	0.000	0.000	0.000	collision
ву	Curre	ent 0.000	0 0.000	0.000	0.000	0.000	0.000	E.
Track Colli	ision	-	-	o get To	ool Param		0.000	
V	TX, 1	Y X		7 Z	Clear	Off X	0.000	ece
sys	K Set	0.00	0 0.000	0.000	Get Post	OffY	0.000	TI.
		0.00	0 0.000	0.000	Get Pos2			
	ABO	Max TX	and TY Char	nge -> B=0, (C change 180		Obtain	

Move the torch make the wire tip is aligned with the tool tip, and click Get Pos. 1

Then change the welding torch attitude(C axis rotate 180°) to align the wire tip wit h the tool tip again, and then click the button**"Get Pos. 2"--obtain--**Error values are displayed,in below area.





Click each Error value--choose **Yes.** -- Press emergency button to save--Rotate the e mergency button--clear alarm

II. TZ Correction:

Click TZ----clear



Then: Move the torch make the wire tip is aligned with the tool tip,and click **Get Pos.**

After that, change the welding torch attitude((B axis rotate more than 30°) to align the wire tip with the tool tip again, and then click the button "**Get Pos. 2**"--**obtain**--Er ror values are displayed --Click each Error value--choose **Yes.** -- Press emergency bu tton to save--Rotate the emergency button--clear alarm



III. ABC Correction:

Click ABC----clear

Then Make the torch perpendicular to the ground--click Get Pos. 1

After that, move in **Y+** direction for a short distance--**Get Pos. 2**"--**obtain**--Error values are displayed --Click each Error value--choose **Yes. --** Press emergency button to sa ve--Rotate the emergency button--clear alarm.

2.2.2 Origin correction

(get 8 different points for correction)



LNC--CaliFix

Then click Clear--click J2-J5,TX,TY,TZ in turn together (no J1 and J6)-- choose 0 (sh



ow below)

							1	1					1	5	/		1
THY .	2 -1 System	Worl	X 4 Y 85 Z 11	-0.01 A 50.50 B 11.48 C	0.00		0.00	free 0.0 0.0	0.tch	,	Q. N	otReady	Alarm `arnin	Reset		•+	
Rw	Clea	ar	J2 J3	0.000	0 J126 0 J16 1 J23		0.009	J1 J2	0.00	TX TY	0.00	CnX CnY	0.00	1 and		F%	
prog	0	1	2	3	4	5	6	јз	0.00	TZ,	0.00	CnZ	0.00	1		•	
Param	7	8	9	10 17	11	12 19	15		0.00	L12 L23	0.00	L5Y	0.00	constra		• 112	
at Syner	14	P 0.	ICK PC) S	0.00	Re X	0.0.	U	0.00	L34a	0.00						
Track	J2 J3	0.	00 Y 00 Z 00 A		0.00	Y	0.0	0 V	0.00		0.0	1					
sys]5]6 U	0	.00 B .00 C		0.00	Z	Goto	0	btain	M	0.0 IaxErro	0					
ET.	V W	0	.00	Pic	K												
					_	- 65	10	世界	利		連续	T	XI				

Move the torch make the wire tip is aligned with the tool tip,and click Pick

I WILLIAM	2 -1 System	World Y 85 Z 11	-0.01 A 0.0 50.50 B 0.0 11.48 C 0.0	00.0 U 0.00 00.0 V 0 00.0 W 0	free 0.0 0.0	0.tch	X	Q. Not	Ready	larm Res	et.
- IRW	Clea	J1 J2	0.000 J12 0.000 J16	6 0.009 6 0.009	J1	0.00	TX	0.00	CnX (0.00	2
2 prog	_	J3 J12	0.000 J23	35 -90.000	J2	0.00	TZ TZ	0.00	CnY CnZ	0.00	1
资定 point	0	1 2	3 4	5 6	14	0.00	L12	0.00	L5X	0.00	*
Param	3	8 9	10 11			0.00	L23	0.00	L5Y	0.00	t
P模式 Syner	14	Pick P	os os		ż	0.00	134a	0.00	L5Z L6X	0.00	-1
gy	J1 J2	0.00 X	0.00	X 0.0		0.00	1	0.00	L6Y	0.00	-
动模式 Track	J3 J4	0.00	A 0.00	0 Z 0.	00 1	V 0.00		0.0	0 L63	z 0.00	-
sys	J5 J6 U	0.00 0.00 0.00	C 0 Pick	Goto	T	Obtain	N	0.0	or	0.00	-

Then choose **1**--Move the torch make the wire tip is aligned with the tool tip,and clic k **Pick**



	ystem	Worl		A 10.0	30.0 0.00			ee aa	0.tch	1)	Q. No	tRead	Varm
5.	-	-	J1 J2	0.00	0 1128	5 0. 0.	009	J1	0.00	TX .	0.00	CnX	0.00
oros	Liea		33	-0.00	01 123	5 -90	001	32	0.00	TY	0.00	CnY	0.00
prog				-	4	5	6	B	0.00	TZ	0.00	CnZ	0.00
poir		T	6			12		14	0.00	L12	0.00	LSX	0.00
	7		9	10	11	10			0.00	L23	0.00	LSY	0.00
Para	14	15	16	17	18		V		0.00	134	0.00	1.57	0.0
Syner	1	1	Pick P	05	0.00			U	0.00	134	0.00	1.6)	0.0
gy	12	0	.00 1	F	0.00		0.00	v	0.00	1	0.0	0 16	Y 0.1
Track	13	0	0.00	A	0.00	1	0.00	-	0.00		0.0	10 16	Z 0.

Repeat until you have reached 8 points (get values for Numbers 0-7)

Attention: The more different the position of the 8 points you get, the better (t he higher the accuracy)



Then click Obtain -- The max error column displays the error value





If the maximum error is less than 2 ,--Click on the value of J2--Yes



Click on the value of J3--yes -- Repeat for J4, J5, TX, TY, TZ-- Press emergency button



to save

Finish:

If the max. Error is more than 2, Reselect the positions of these 8 points until the final maximum error is less than 2.

3. Welding technology

3.1 Straight line welding

Log in the "Machinery" level, create a file first, find the files list then input a new file name in the frame before ".tch". (like TEST) click "OK" -"Create". open your new file.

		File Opra	ite		Filter	arnin
	Filename	Size	DateTime			
1	1000.tch	300	週四 7月 9 11:05:36 2020	^	lurrent Name	EST.tch
2	1001.tch	300	週四 7月 9 11:05:56 2020			
3	1002.tch	600	週四 7月 9 11:08:46 2020		Delen C	
4	1003.tch	800	週四7月911:28:12 2020		Delete Se	lected file
5	101.tch	1600	遇五 7月 17 10:53:00 2020		TEST	.tch
6	111.tch	1300	週五 7月 17 09:04:16 2020		Save as	Create
7	2YUAN.tch	800	遇三 7月 15 14:53:52 2020		Save as	Create
8	9999.tch	3000	週三 7月 15 14:53:52 2020	V	Cancel	Open
		and the second second				and the second se

The straight line welding program is shown as below steps:

Firstly, make sure it's in "Teach mode" now.

Ready step: click "LNC" - "Servo", then holding pressing the enable button at the back of the teach pendant, click "To Cali Poss" one time, it changes to blue, then continuou



sly pressing until it changes to gray,the robot backed to its origin point Now the number under "JointPos" and "CaliPos" are almost the same.

7		COLUMN ST	laure Day	and the second second		
RW	11	0	0.000	0.000	ServoOn	1
og	J2	0	0.000	0.000		1
int	JЗ	0	0.000	0.000	Auto Set Pos	-
ram	J4	0	0.000	0.000		col
ner	JS	0	90.000	90.000	To Cali Pos	C
SY 🗸	J6	0	-0.005	0.000		0
ack					Acc Action Time Hour Minute Second	
ys					749 6 30	Š,
-					Reset Action Time	1

Secondly,go back to the new file.Let's begin the real step.

Step1: Set the original point as the first point (click "Record"--"Fast");

Enter the Number of the welding parameter package needed you already set.

LNC	0 -1 Machina	World	X Y 8 Z 6	-0.59 A 804.18 B 599.75 C	U 00.0 V 00.0 W 00.0-	0.00	free 0.0 0.	TESTO	1.tc]	9.	NotReady	Alarm arnin	Reset
5		TEST01	.tch		Save	BlockOP	Record	BasicCi	nd Ext	Cmd	ProdAct	0	1 march
pris	*					Dutput II	600	On	Off	On	Pulse	I	- Charles
point						OnAuto	oOff1	OnAuto	Off2 0	nAu	toOff3	~	I arc
						aram A	(#1	Wait	Wait	I	nPos	^	collision
Param						0		200				Near	- Co
gy						O_FII	e	Select C	oor	_		~	-0-
Track	12.3							Cen	Pass		Fast	×	
sys	19.3						30	Curve	Mid		Line	Y	
	Simple	G	Cu	t Copy	Paste	Up D	n Back	ware For	ward	Step	GX.	Detai	
		Sec. 1		Charles and	-	an internet	-			~			



You can also put in the moving speed you need.

LNC	0 Machir	-1 Worl	d Y 80 Z 71	0.58 A 44.13 B 0.15 C	0.00 U 0.00 V -0.00 W	0.00	free o.c o.	TESTO1.to	10.	NotReady	tarm arnin	Resec
1 SRW		TESTO	1.tch		Save	BlockOP	Record	BasicCmd	ExtCmd	ProdAct	1	
prog	1	Fast:Jo	int Coo	or, Prvs	peed=30	Fast	- At	sc - Joint	Co -	0 0	T	
	*						-	Set Value	Cur	Value	P.	
point						J1		0.000		0.000	1	-
						J2		0.000)	-0.297	1	1
Param						J3		-0.002	2	1.148	Near	
Syner						J4		0.00	1	0.000	The.	
gy						J5		90.00	0	90.859		. 5
Track						J6		0.00	3	0.008	1×	
sys						Get Cu	Ir Slow	D	Speed	15		1 AL
	Simple	G	Cut	Сору	Paste	Up D	n Back		d Step	1.0	Deta	ail

Step2: Move the welding torch to a point about 10cm above the weld seam.

(by pressing the brake while holding clicking"X+"or"X-",then click"Record"- "Fast")

LNC	0 -	1 World				0.00	free o.c	0.0	TESTO	1.tc	10.	5.0 9	Narm arnin	
5.		TEST01	.tch		Save	BlockOP	Rec	ord	BasicC	md Ex	tCmd	ProdAct	2	
prog	1	Fast:Jol	nt Coo	r, PrvS	ipeed=30	Dutpu:1	60	0	On	Off	On	Pulse	T	
18	2	Fast:Joi	nt Coo	r, PrvS	ipeed=30	OnAut	oOff	1 0	Auto	Off2	OnAu	toOff3	1	Par
point	*							101	man	OTT				1614
Param						aram A	(#1	20	ait DO	Wait	:]]	InPos	Near	Collocal Collocal
Syner gy						O_FI	le	Se	elect C	oor			~	0
Track								C	en	Pas	s	Fast	V	Colora Colora
sys								3DC	urve	Mid	4	Line	Y	-
Rei .	Simple	G	Cut	Сору	Paste	Up D	n Ba	ckwa	arc For	ward	Step	O.K.	Deta	il

Step3: Move the welding torch to the point where welding start and record it.



(by pressing the brake while holding clicking"Z-", click "Record"- "Fast".)

LNC	0 Machir	-1 World Y 733.27 Z 690.84	A 0.00 U B 0.00 V C -0.00 W	0.00 F fro 0.00 0.0		1.tc)9	5.0 9	larm	Reset
5		TEST01.tch	Save	BlockOP Re	ecord BasicC	md ExtCm	d ProdAct	3	1 miles
Drog	1	Fast:Joint Coor,	PrvSpeed=30	Dutput ID	500 On	Off	On Pulse	T	- 10
prog	2	Fast:Joint Coor,	PrvSpeed=30			0552 0.01		1	Pac
point	3	Fast:Joint Coor,	PrvSpeed=30	OnAutoOf	IT1 UNAULO	UTTZ UTTZ	uccons	12	all.
Param	*			aram A(#1 0	Wait 200	Wait	InPos	Near	0
Syner gy				O_File	Select (Coor		~	-0
Track	1				Cen	Pass	Fast		(32.50) 10 - 10 - 10 - 10 - 10 - 10 - 10 - 10 -
sys	13				3DCurve	Mid	Line	Y	1
	Simpl	G Cut C	opy Paste	Up Dn	Backware For	ward Ste	p. OX	Deta	n N

Step4: Give an arc start direction. (Click "Prodact" - "Arc on").

LNC	0 Machi	-1 Nori	d Y 73 Z 69			0.00	free 0.0 0.0	TEST01.t	19.	5.0 %	Alarmi arnin	Reset
5		TESTO	1.tch		Save	BlockOP	Record	BasicCmd	ExtCmd	ProdAct	3	
ARC	1	Fast:Jo	int Cod	or, Prvs	Speed=30	Arc OI	4		-		T	111
prog	2	Fast:Jo	int Cod	or, Prv	Speed=30	-	rc num	0			~	
point	3	Fast:Jo	int Coo	or, Prv	Speed=30						10	
	*	1 and									1	- collier
Param											Near	F C
Syner											V	10
Track									2		×	
sys											Y	
	Simpl	e G	Cut	Сору	Paste	Up D	n Backv		rd Step	OK	Det	ail

Step5: Start straight line welding.



(by pressing the brake while holding clicking"Y-"or"Y+", then click"Record"-"Line") .

INC	0	-1 World X	-31.07 A 855.93 B 692.92 C	-0.02 U 18.38 V 0.19 W	0.00	free 0.0 0.0	666.tc	h J	Q.	NotReady	Alarm	Reset	
5	Syst	666.tch		Save	BlockOP	Record	BasicCr	nd ExtC	md	ProdAct	4	drop	
ERW.	1	Fast:Joint	Coor, Prv	Speed=30	Dutput ID	600	On	Off	On	Pulse		1 all	
pros	2	Fast:Joint	Coor, Prv	Speed=30	OnAuto	ooff1 0	nAuto	Off2 O	nAu	toOff3	~	al al	N
point	4	Line:Worl	d Coor, P	rvSpeed=4	aram A	(#1	Wait	Wait	I	nPos	^	collision	
Paran	•				0		000	man			Near	Gend	
Syne gy-					O_FII	e 🛛 9	elect C	oor	-		~	-	
Trac	k						Cen	Pass	-	Fast	≫		
sys						3D	Curve	Mid	L	Line	Y	air air	
	Sir	mple G	Cut Cop	py Paste	Up D	n Back	ware Forv	vard S	tep	ОК	Detai	70	

Step6: Give an arc off direction (click "Prodact" - "Arc off").

NC	0 -	World	x -313 Y 855. 7 692	93 8 92 C	18.38 V 0.19 W	0.00	0.0	0.0 6	66.tch	X	50.0 9	arnin	Reset
5	-	666.to	h		Save	BlockOP	Reco	rd B	asicCmd	ExtCmd	ProdAct	5	drop
RRW	1	Fast:Joir	nt Coor	, PrvSp	eed=30	%, Soft=	0, Wait	=0			1:		a she
prog	2	Fast:Join	nt Coor	, PrvSp	eed=30	%, Soft=	0, Walt	=0			2:		arc
point	3	Arc ON:	Arc ON	1, 1,							3:		1 X C
-	4	Line:Wo	rld Co	or, Prv	Speed=	480, Soft	=0, Wa	t=0			4:		coffision
Param	5	Arc OF	Arc O	FF, _, _			1				5:	Near	
Syner	*					-						V	
gy												N	Qeive
Track												V	-
	1											Y	air
sys				_					T			Deta	5
	Simp	e G	Cut	Сору	Paste	Up	Dn Ba	ckwa	rc Forwa	rd Ste	P OK	Beta	- Inter
	-	Constanting of	1	A COLUMN T	No. of the local diversion of the local diver				-				

Step6: Move the welding torch to a point about 10cm above the end weld seam. (by pressing the brake while holding clicking"Z+", click "Record"- "Fast".)



LNC	0 Syste	-1 Wor		-31.06 A 355.96 B 733.75 C	-0.01 L 18.38 V 0.19 W	00.0 0 00.0 0	free 0.0 0.0	666.te	th A	Q. N	otReady	Alarm	Reset
ZRU		666	i.tch		Fave	BlockOP	Record	BasicC	md ExtC	md Pr	rodAct	6	
prog	1	Fast:Jo	oint Co	or, Prv	Speed=3	Dutput II	600	On	Off	On P	ulse		drop
point	3	Arc OI	N:Arc (DN, 1, _		OnAuto	oOff1 0	nAuto	Off2 Or	Auto	Off3	~	1 arc
Param	4	Line:W Arc Of	orld C	oor, Pr OFF, _,	vSpeed=	4 aram A(#1 V	Vait	Wait	InP	os	^	coffision
Syner gy	6	Fast:Jo	Int Co	or, Prvs	Speed=30	O_File		elect C	oor		_	Near	
Track							c	en	Pass	Fa	st	⋧	Devi
sys							300	urve	Mid	Lir	ne	Y	Kair
NT S	Simple	G	Cut	Сору	Paste	Up Dn	Backwa	arc Forw	ard St	ep	OK	Detail	2

Don't forget to click "Save".

LNC	0 Syste	-1 World Y 8 Z 7	31.06 A 355.96 B 33.75 C	-0.01 U 18.38 V 18.39 W	0.00	free 0.0 0.0	666.t	ch 🕽	Q.	NotReady	Alarm arnin	Reset
Ru		666.tch		Fave	BlockOP	Record	Basico	md Ext	md	ProdAct	6	- A
prog	1	Fast:Joint Co	or, Prvs	Speed=30	Dutput ID	600	On	Off	On	Pulse	R	drop
	2	Fast:Joint Co	or, Prvs	Speed=30								1
point	3	Arc ON:Arc C	DN, 1, _		OnAuto	Off1 0	nAuto	Off2 O	nAut	oOff3	\approx	arc
	4	Line:World C	oor, Pr	vSpeed=4	aram A(#1 W	/ait		T			
Param	5	Arc OFF:Arc	OFF, _,		0	1(000	Wait	I	nPos		Comision
Syner	6	Fast:Joint Co	or, PrvS	peed=30	0 File				_	_	Near	Gend
gy 🗸	*						elect C	oor		100	V	0
Track						C	en	Pass		Fast	V	Qeivi
sys					-	3DC	urve	Mid		Line	Ť	Kat
R	Simple	G Cut	Сору	Paste	Up Dn	Backwa	rc Forw	vard St	tep	OK	Detail	20

At last,move the welding torch to the original point by repeat the ready step before S tep1

Simulate program running



At last, switch the system to "Auto mode" and simulate this program to see if there exists any problem (Press "Auto"-click "Simu" to light it.-cilck "Start head")

then the robot would run the program automatically.

FI	LNC	-1 Worl	d x 69.39 733.28 743.28		0.00	free T	ESTO1.tc	* Ready	Alarm	Reset	-	-
	5	TESTO	1.tch	Save		/ 2	<u>⊨</u> 19.38	Sec/Pcs	6	2	0	
E2	ERW 1	Fast:Jo		rvSpeed=30	%, Soft=0	, Wait=0	The same	2:			F	%
	prog 2	Fast:jo	int Coor, P	rvSpeed=30	%, Soft=0	, Wait=0		3:		2 and		
● 視定	point 3	Arc Of	Arc ON, 0					4:		_		- 255
Ö	4	Line:W	forld Coor,	PrvSpeed=4	480, Soft=	0, Wait=0		5:	~	-		10.00
- 推护模式	Param 5	Arc OF	F:Arc OFF,					5:	Near	A.		NE SA
53	Syner 6	Fast:Jo	int Coor, P	rvSpeed=30	0%, Soft=0	D, Wait=0		6:	-			
202	gy *									1 m R		暂停
自动模式	Track											11
1 1												1 结束
No. of Concession, Name	sys								-	-	1	
TEXCEN.		100			Curlo	Lock	Stalt Here	Start Hear	d Detai	il il	10000	-

If there is any problem, switch the system to teach mode and change the step which may have a problem.

3.2 Round arc welding



First, label 4 average points on the work-piece and name them as point1, point2, point 3, point4, point5. (point5 is the same position as point1) we need to follow this path mo ving rules, point1(line)-point2(mid)-point3(line)-point4(mid)-point5(line).

First, create a file and name it, then open the file.

Before this program, switch the system to "Teach mode", click "LNC"-

"servo", make the robot moving to "CaliPos".

Now lets edit the round arc welding program.



LNC	0 -1 System	World	X -62.69 Y 1038.15 Z 605.89	A -1 B C 1	79.94 U 13.36 V 79.97 W	0.00 0.00 0.00	free 0.0 0.0	NS.tch	1Q .	Ready 7.5 %	Alarm arnin	eset
Prog	•	INS.to	:h		Save	119.99	/ 2	-	60.00	Sec/Pcs		
point Param											Near	30
Syner gy Track											> >>	
\$ys	Simple	G	141633	1	0	Cycle	Lock	Start H	Here	Start Head	Detai	

Step1: set the original point as the first step point (Click "Record"- "Fast")



Step2 Move the welding torch to about 10 cm above point1 as a safety point, (click"Record"- "fast")



5	1111	20202.tch	Save	BlockOP	Record	BasicC	md ExtC	md ProdAct	2	Arop
A RU	1	Fast:Joint Coor, Pr	vSpeed=30	Dutput ID	600	On	Off	On Pulse		- k
pros	2	Fast:Joint Coor, Pr	vSpeed=30				0442 01	AutoOff3		arc
point	*.			OnAuto	0111 0	nAuto	0112 01	Autoons		
Param				aram A(# 0		/ait 000	Wait	InPos	Near	collision
Syner gy				O_File	_s	elect C	oor		~	
Track					C	en	Pass	Fast	¥	Qew
sys					3D0	urve	Mid	Line	Y	*
			Pacte	Up Dn	Backw	arc Forw	iard St	ер ОК	Detail	20

Step3 lowered down the welding torch to point1,that means it's ready to start weld.(C lick "Record"- "fast" to record the path motion).

CIVE Sys	tem <u>Z 448.35</u> C	-179.99 W	0.00	and PacieC	me ExtCr	nd ProdAct	3
3.	20202.tch	Save	BlockOP Re	coro basice	IIIC EACC		
Drog 1	Fast:Joint Coor, Pr	vSpeed=30	Dutput IC 6	00 On	Off	On Pulse	
2	Fast:Joint Coor, Pr	vSpeed=30	OnAutoOf	f1 OnAuto	Off2 On	AutoOff3	\approx
point 3	Fast:Joint Coor, Pr	vSpeed=30	UIIAUCUUI				
Param			aram A(#1	Wait	Wait	InPos	
Farain		12.23	0	1000			Near
Syner			O_File	Select (oor		V
Track				Cen	Pass	Fasic	×
				2000	Mid	Line	Ě
sys			1 - and	SUCUIVE	MIG	Eme	Ľ

Step4 set point1 as the start point of first semicircle

(Click "Record"- "line")



LNC	Syste	World Y 1036.18 B	29.13 V -179.99 W	00.0	0.0	0.0 20202.	icen y	* 7.5 %	arı
5		20202.tch	Save	BlockOP	Reco	ord BasicCr	nd ExtCm	d ProdAct	-
TRW	1	Fast:Joint Coor, Pr	vSpeed=30	Dutput ID	60	0 On	Off	On Pulse	
prog	2	Fast:Joint Coor, Pr	vSpeed=30	OnAut	oOff	OnAuto	Off2 On	AutoOff3	
point	3	Fast:Joint Coor, P	rvSpeed=30	UIIAde					Ĩ
	4	Line:World Coor,	PrvSpeed=4	aram A	(#1	Wait	Wait	InPos	
Param	*			0		1000			-
Syner				O_Fil	le	Select (Coor		
gy						Cen	Pass	Fast	
Track							Mid	Lin	
tur					8181	3DCurve	MIU		

Step5 Give an arc start direction (click " ProdAct"- "arc on",input the arc number you already set)





LNC	0 - Syste	1 Wor	Id Y 103 Z 44	51.65 A 36.18 B 48.35 C	179.97 29.13 -179.99	V 0.0 V 0.0 N 0.1		free 0.0 0.0	20202.td	in 19.	Teaching	Alarm	Reset
TRU	1000	2020	2.tch	neing	Save	Block	KOP	Record	BasicCmd	ExtCmd	ProdAct	5	1 the
prog	1	Fast:Jo	int Co	or, Prv	Speed=3	0%, So	ft=0,	Wait=0		1	:	R	drop
P	2	Fast:Jo	int Co	or, Prvs	Speed=3	0%, So	ft=0,	Wait=0		2	:		1
point	3	Fast:Jo	int Co	or, Prv	Speed=3	0%, So	ft=0,	Wait=0		3	:	\approx	arc
	4	Line:W	orld C	oor, Pr	vSpeed=	480, S	oft=0	, Wait=0		4	:	~	Collision
Param	5	Arc Of	N:Arc C	N, 1, _						5	:	Nasa	-0
Syner	•											Near	Cend
gy	120						-		CONTRACTOR			~	0
Track												×	Qeivi
sys												Y	Hair
	Simple	G	Cut	Сору	Paste	Up	Dn	Backwa	rc Forward	Step	OK	Detail	Tan

Step6 Raise and move the welding torch to make the wire tip aligned with point2. (Click "Record"-"Mid")

LNC	Syst	em		172.96 B	29.12	V 0.00 V 0.00	0.0	0,0	20202	tch	9.	Teaching 7.5 %	Alarm	Res
TRW		2020	02.tch		Save	BlockO	P R	ecord	BasicC	md ExtC	md	ProdAct	6	-
Drog	1	Fast:Jo	oint Co	or, Prv	Speed=3	0 Dutput	10	600	On	Off	On	Pulsa		11
F0	2	Fast:Jo	oint Co	or, Prv	Speed=3	0	-					raise		6
point	3	Fast:Jo	oint Co	or, Prv	Speed=3	0 OnAu	toO	ff1 0	nAuto	Off2 Or	Aut	oOff3	\approx	11
	4	Line:W	Vorld C	oor, Pr	vSpeed=	4 aram	A(#1		ait		T		~	
Param	5	Arc OI	N:Arc (DN, 1, _		- 0		10	000	Wait	Ir	Pos		
Syner	6	Mid:W	orld C	oor, 3P	Curve	O E	ile				-	_	Near	Č
gy	•							Se	elect C	oor			V	-0
Track								Ce	en	Pass	F	ast	*	C
sys								3DC	urve	Mid	L	ine	Ť	Ê
	Simple	G	Cut	Сору	Paste	Up D	Dn 3	ackwa	rc Forw	ard Ste	ep	ОК	Detail	1

Step7 Raise and move the welding torch to make the wire tip aligned with point3. (Click "Record"-"Line")



LNC	0 Syste	-1 em		19.73 A 27.06 B 45.75 C	179.99 U 29.11 V 179.99 W	0.00	free 0.0	0.0 20	202.to	th X	2 7	.5 %	Alarm	Reset
Tem	-	2020	2.tch		Save	BlockOP	Reco	rd Ba	sicCmd	ExtCn	nd Pro	dAct	7	1 and the
prog	1	Fast:Jo	oint Co	or, Prv	Speed=30	Dutput 1	600	0	n	Off	On Pu	lse	R	drop
P8	2	Fast:Jo	oint Co	or, Prv	Speed=30			T		T				2
point	3	Fast:Jo	oint Co	or, Prv	Speed=30	OnAut	oOff1	OnA	utoOff	2 On	AutoO	off3	\sim	
	4	Line:W	Vorld C	oor, Pr	vSpeed=4	aram A	(#1	Wait			T		~	coffision
Param	5	Arc OI	N:Arc C	DN, 1, _		0		1000	N	Vait	InP	os	Near	-0
Syner	6	Mid:W	orld Co	bor, 3P	Curve	O_Fi	le							Cend
gy	7	Line:W	orld C	oor, Pr	vSpeed=4	•		Sele	ct Coo	r			V	0
Track	*							Cen	P	ass	Fas	st	8	Qeiv
sys							3	DCur	ve	Mid	Bir	ne	Ì	Kair
	Simple	G	Cut	Сору	Paste	Up D	n Bac	kware	Forwar	d Ste	ep	OK	Detai	

Step8 Raise and move the welding torch to make the wire tip aligned with point4. (Click "Record"-"Mid")

5	-	20202.tch	Save	BlockOP	Record	BasicC	md ExtC	md ProdAct	8
RW	1	Fast:Joint Coor, Pr	vSpeed=30	Dutput ID	600	On	Off	On Pulse	R
prog	2	Fast:Joint Coor, Pr	vSpeed=30						
point	3	Fast:Joint Coor, Pr	vSpeed=30	OnAuto	Off1 0	nAuto	Off2 Or	AutoOff3	\sim
	4	Line:World Coor,	PrvSpeed=4	aram A(#1 V	Vait		1	~
Param	5	Arc ON:Arc ON, 1		0	1	000	Wait	InPos	Near
Syner	6	Mid:World Coor, 3	PCurve	O_File					
gy	7	Line:World Coor,	PrvSpeed=4			elect C	oor		$\mathbf{\mathbf{x}}$
Track	8	Mid:World Coor, 3	PCurve		0	Cen	Pass	Fast	¥
	*			Berne	300	Curve	Mid	Line	

Step9 Raise and move the welding torch to make the wire tip aligned with point5. (Click "Record"-"Line")



NC	0 - Syster	1 World	-62.8 1036.3 2 445.8	2 A -1 3 B 33 C -1	79.99 U 29.09 V 79.99 W	0.00 00.0 00.0	fre 0.0	e 0.0	20202	.tch	Q .	7.5 %	arnin	Reset
5		20202.1	ch		Save	BlockC	P Re	cord	BasicC	md Extu	mu	FIOUACE		dros
TRW	1	Fast:Join	t Coor.	, PrvSp	eed=30	Dutpu	tIC 6	00	On	Off	On	Pulse		- A
prog	2	Fast:Join	t Coor	, PrvSp	eed=30	-		IT 0	nAuto	off2 0	nAu	toOff3	\approx	arc arc
point	3	Fast:Join	nt Coor	, PrvS	beed=30	OnA	utoon	110	Auto					W.
	4	Line:Wo	rld Co	or, Prv	Speed=4	4 aran	n A(#1	V	Wait	Wait	1	InPos		collisio
Param	5	Arc ON	Arc ON	N, 1, _,		-	0	1	000	d Donae.			Near	Ğ
Syner	6	Mid:Wo	rld Cod	or, 3PC	urve	0.	File		elect (Coor			V	0
gy	7	Line:W	orld Co	or, Pr	Speed=	4			-	Dass	T	East	V	Q
Track	8	Mid:Wo	rid Co	or, 3P0	urve				Cen	Pass		rast	V	- 20
-	9	Line:W	orld Co	por, Pr	vSpeed=	4		3D	Curve	Mid		Line	Y	5
sys														5
	Sim	ole G	Cut	Сору	Paste	Up	Dn	Backy	ware For	ward	Step	OK	Deta	"

Step 10 Give an arc end direction (click" ProdAct"- "arc off ")

5	Constant in	20202.tch	Save	BlockOP	Record	BasicCmd Ex	tCmd ProdAct	11
TRU	3	Fast:Joint Coor, Pr	vSpeed=30	Arc	ing	Fish scale		5
prog	4	Line:World Coor, F	vrvSpeed=4	vSpeed=4 Arc ON		Path End	laser Cmd	
point	5	Arc ON:Arc ON, 1,		Cont	Arc		laser Cmd2	
	6	Mid:World Coor, 3	PCurve	Arc	OFF		laser coor	
aram	7	Line:World Coor, F	PrvSpeed=4		10	2D Search	Auxiliary Cmd	No
Syner	8	Mid:World Coor, 3	PCurve			3D Search		140
gy	9	Line:World Coor, F	PrvSpeed=4			Circle Search		
Track	10	Arc OFF:Arc OFF,		Round	welding			
	11	Fast:Joint Coor, Pr	vSpeed=30	Fron	t Rear			
sys				left	Right			

Step11 Raise the welding torch up to a safety point

(Click "Record"- "fast")



5		20202.tch Save	BlockOP Record	BasicCmc Ext	Cmd ProdAct	11
ARU	3	Fast:Joint Coor, PrvSpeed=30	Arcing	Fish scale		5
prog	4	Line:World Coor, PrvSpeed=4	Arc ON	Path End	laser Cmd	
point	5	Arc ON:Arc ON, 1,	Cont Arc		laser Cmd2	
	6	Mid:World Coor, 3PCurve	Arc OFF		laser coor	
aram	7	Line:World Coor, PrvSpeed=4		2D Search	Auxiliary Cmd	Ne
yner	8	Mid:World Coor, 3PCurve		3D Search		-
gy 🗸	9	Line:World Coor, PrvSpeed=4		Circle Search		
rack	10	Arc OFF:Arc OFF,	Round welding			
	11	Fast:Joint Coor, PrvSpeed=30	Front Rear			
sys	ys	STREET, STREET	left Right			

Then don't forget to click "Save".

LNC	0 Syste	-1 World Y 1036.32 B Z 504.87 C	-179.99 U 29.10 V -179.99 W	00.0 00.0 00.0	free 0.0 0.0	20202.tch	19. NotRea 7.5	idy Alarn Marni
Sem		20202.tch	Save	BlockOP	Record	BasicCmd Ex	tCmd ProdA	at 11
Drog	3	Fast:Joint Coor, Pro	vSpeed=30	Arc	ing	Fish scale		
prob	4	Line:World Coor, P	rvSpeed=4	Arc	ON	Path End	laser Cmd	
point	5	Arc ON:Arc ON, 1,		Cont	ont Arc		laser Cmd2	
	6	Mid:World Coor, 3	PCurve	Arc	OFF		laser coor	~
Param	7	Line:World Coor, P	rvSpeed=4			2D Search	Auxiliary Cm	d Nez
Syner	8	Mid:World Coor, 3	PCurve			3D Search		The
gy	9	Line:World Coor, P	rvSpeed=4			Circle Search		~
Track	10	Arc OFF:Arc OFF,		Round	welding			3
	11	Fast:Joint Coor, Pr	vSpeed=30	Fron	t Rear			
sys			left	Right				
	Simple	G Cut Cop	y Paste	Up D	n Backv	varc Forward	Step C	K Det

At last, switch the system to "Auto mode" and simulate this program to see if there exists any problem (Press "Auto"-click "Simu" to light it.-cilck "Start head")



5	1 Ster	1110	14 003-85	Tel	Same	110.00		2		60.00	Soc/Per	12	0
RW	-	LNC.	tcn		Save	119.99	/	L		00.00	SEUPIS		
Drog	1	Fast:Joint Coor, PrvSpeed=30%, Soft=0, Wait=0									1:		
pros	2	Fast:Jo	int Coor,	PrvS	speed=30	0%, Soft=0	, Wait	=0			2:		UTIL
point	3	Fast:Jo	int Coor,	Prvs	speed=30	0%, Soft=0	, Wait	=0			3:		
	4	Line:W	orld Coor	, Pr	vSpeed=		4:	~					
Param	5	Arc ON	Arc ON,	1, _			5:	Near					
Syner	6	Mid:W	orld Coor	30	Curve						6:	-	1m
gy	7	Line:W	orld Coor	, Pr	vSpeed=	480, Soft=	0, Wa	it=0			7:	~	
Track	8	Mid:W	orld Coor	3P	Curve						8:	8	
	9	Line:W	orld Coor	, Pr	vSpeed=	480, Soft	0, Wa	it=0			9:	Ť	
sys	10	Arc OFF:Arc OFF,									10:	Ľ	
			144622	,	0	Cycle	Lor	k	Start H	ere	Start Head	Detail	

4. Robot accessories device operation

4.1 The additional shaft

Step1. Press "LNC" to the main menu, click "Hardware"

Now Level	4	V09.04 200531	0-760	0-1-9-8	=
		MchLock	Servo	Reboot	Authorize
Log	out	Install	Coor	Record	Safe Pos
Password New Durd		Recipe	Transfer	Network	Language
Confirm	Change	Option	IO Set	Comm	Resource
		Tuning	Limit	Calibrate	CaliFix
Default HMI Select		Hardware	GearRatio	ServoParam	MainBody



Step2. Click "Axis list", make the status shows "1toN" after serial number. " Pulse" is unable to use.

LNC	0 -1 System	d ¥	-43.70 A 1 928.06 B 758.00 C -1	06.43 U 31.20 V 70.23 W	0.00 fre	a.o AS.tch	19	* 25.0	dy Alarm % arnin	Reset
TRW	Hardware		Axis	List	Model	DigiAbs				- Coros
prog	Axis List	1	Pulse	unabl	e to us 347	e No	1.No S	ervoOn pOn		1
point		2	1toN	12	347	No	4.Gant 5.Gant	ry 11 ry 12		-
-		3	1toN	13	347	No	6.Gant 7.Show	ry 13 in Teach rd in Proc		collision
Param		4	1toN	14	347	No	9.Alwa 11.Mo	ys Sync ve World P	osX	
Syner	FactorySet	5	1toN	15	347	No	12.Mo 13.Mo	ve World P	osr osz	CINE
Track	able to	6	1toN	16	347	No		Usage	100	eceive
-	use	7	1toN	17	347	Yes	7	25		Ĩ
sys		8	1toN	18	347	Yes	8	26		air
	DebugMsg	9	ItoN	21	347	Yes	9	2.6		-
						And Personnel Name	-	_		-

Step3. If the robot only support IO/Pulse communication way,make sure the "DigiAbs" shows "No" in all rows.

If the robot support Bus communication way, change all "No" to "Yes" in "DigiAbs" line.

LNC	0 -1 Wor		-0.09 A -1 625.78 8 915.53 C 1	78.02 U 30.94 V 78.27 W	0.00 0.0	e AS.tch	A	* 30.0	arnin	Reset
TRU	Hardware		Axis I	List	Model	DigiAbs	10 5 4 4	dar ook	_	(and
prog	Axis List	1	1toN	11	347	No	1.No S 2.Serv	ervoOn		1
noint		2	1toN	12	347	No	4.Gant 5.Gant	ry 1 ry 2		
pome		3	1toN	13	347	No	6.Gant 7.Show	v in Teach		calitsion
Param		4	1toN	14	347	No	9.Alwa 11.Mo	ve World P	OSX	F
Syner	FactorySet	5	1toN	15	347	No	12.MC	we World P	Posz	Send
Track		6	1toN	16	347	No		Usage		eceivi
		7	1toN	17	347	No	7	25		Ĩ
sys		8	1toN	18	347	No	8	26		ar
	DebugMsg	9	1toN	21	347	No.	9	26	0.00	1

Step4.The serial number 1-6 stands for robot axis J1-J6



The serial number 7-9 stands for additional axis, which number was linked with which additional axis is unknown, so try to move "rX"/ "rY"/ "rZ", check the machine moving one by one and remember.

LNC	0 -1 System		-43.70 A 10 928.06 B 3 758.00 C -1	06.43 U - 31.20 V 70.23 W	0.00 fre 0.00 0.0	0.0 AS.tch	1	9.	25.0	% arnin	Res
TRW	Hardware		Axis l	.ist	Model	DigiAbs	INF	ncode	ronly		1
prog	Axis List	1	Pulse	11	347	No	1.N 2.5	o ServervoO	n		1
point		2	1toN	12	347	No	4.G 5.G	antry	1		
-		3	1toN	13	347	No	6.G 7.S	antry how in ecord	13 Teach in Proc		collis
Param		4	1toN	14	347	No	9.A 11.	Move	Sync World Pe	osX	e
Syner gy	FactorySet	5	1toN	15	347	No	13.	Move	World Po	osz	
Track		6	1toN	16	347	No	_	U	sage	1	ec
	-	7	1toN	17	347	Yes	-	7	25		Î
sys		8	1toN	18	347	Yes	2	8	26		
	DebugMsg	9	1toN	21	347	Yes	-	9	26		

4.2 IO set

Click "LNC"- "IO set"

It shows all the softID and HardID which has already been set here,after that it com es with the ID description.

"DO" shows the output command

"DI" shows the input command

Click "Edit" to name the function after the software you set.



LNC	2 -1 Motor	A1 0.00 A2 0.00 A3 -0.00	A4 0.00 U A5 89.99 V A6 0.00 V	U 0.00 V 0.00 V 0.00	free 0.0	0.0 ZHU.	tch Maint 5.0	ain Alarm % arnin
TRW	DI	DO	AI	A	0	TCI	Delete	Jpdate
prog	AllUsed	SoftID	HardID	Inv	Force	State	Descript	
noint	KeyBorad	867	20035				rX-/U-	
point	Keyborad	868	20034				rY-/V-	
Param	SI01730	869	20033	1			rZ-/W-	
Syner	SI01732	876	20042				Ready	
gy	Com DO	877	20043				Run/Pause	
Track	Ether DO	2000	50016					
eve		2001	50017					
sys		2002	50018					E dia
		2003	50019					Edit

.NC	2 -1 Motor	A1 0.00 A2 0.00 A3 -0.00	A4 0.00 U A5 89.99 V A6 0.00 W	0.00 0.00 0.00	free 0.0	0.0 ZHU.	tch 19 Maintai	n Alarm Xarnin
RW	DI 🔪	DO	IA	A	o	TCI	DeleteUp	odate
prog	AllUsed	SoftID	HardID	Inv	Force	State	Descript	
		1	50016				External EMG	
point	KeyBorad	53	50009				External Pause	
Param	SI01730	70	101103				I Gskip Bit0	
Syner	SI01732	326	50022					
gy 🗤	Com DI	327	50023					
Track		500	50000			On		
-	Ether DI	730	50007				Reservation In…	
sys		731	50008				Reservation In…	
		800	20000				F1	Edit



[Input commend]

1=External Emergency stop



- 42=Safety grating1
- 43=Safety grating2
- 47=mechanical homing
- 50=Forced release of brake
- 51=start NC
- 52=Start the current program
- 53=External pause signal
- 54=External path reset
- 70=I point Gskip function Bit0
- 71=I point Gskip functionBit1
- 72=I point Gskip functionBit2
- 73=I point Gskip functionBit3
- 80=The list page program selects 0
- 81=The list page program selects1
- 82=The list page program selects2
- 83=The list page program selects3
- 84=The list page program selects4
- 100=Positive limit of the Axis 1
- 101=Positive limit of the Axis 2
- 102=Positive limit of the Axis 3
- 103=Positive limit of the Axis 4
- 104=Positive limit of the Axis 5
- 105=Positive limit of the Axis 6



106=Positive limit of the Axis 7 107=Positive limit of the Axis 8

108=Positive limit of the Axis 8

132=Negative limit of the Axis 1

133=Negative limit of the Axis 2

134=Negative limit of the Axis 3

135=Negative limit of the Axis 4

136=Negative limit of the Axis 5

137=Negative limit of the Axis 6

138=Negative limit of the Axis 7

139=Negative limit of the Axis 8

140=Negative limit of the Axis 9

730=Control box (reservation box) input (0)

731=Control box (reservation box) input(1)

732=Control box (reservation box) input(2)

733=Control box (reservation box) input(3)

734=Control box (reservation box) input(4)

735=Control box (reservation box) input(5)

736=Control box (reservation box) input(6)

737=Control box (reservation box) input(7)

738=Control box (reservation box) input(8)

739=Control box (reservation box) input(9)

740=Control box (reservation box) input(10)



741=Control box (reservation box) input(11)
742=Control box (reservation box) input(12)
743=Control box (reservation box) input(13)
744=Control box (reservation box) input(14)
745=Control box (reservation box) input(15)
746=Control box (reservation box) input(16)
747=Control box (reservation box) input(17)
748=Control box (reservation box) input(18)
749=Control box (reservation box) input(19)
871=safety switch1
872=Control box (reservation box) input2
873=External Emergency stop
875=Safety grating
876=Safety grating

[Output commend]

- 60= In the operation of S0
- 61=In the pause of S1
- 62=path resetS2
- 63=alarm S3000
- 64=warningS3001
- 65=Emergency stop



- 66=emergency stop flashes
- 67=Axial emergency
- 68=Ready to complete
- 69=Programable start
- 90=starting up is "On", Break 1 second on reset
- 91="On 1second" when emergency stop s released
- 92=System reset signal C3000
- 730=Control box(Reservation box)output(0)
- 731=Control box(Reservation box)output(1)
- 732=Control box(Reservation box)output(2)
- 733=Control box(Reservation box)output(3)
- 734=Control box(Reservation box)output(4)
- 735=Control box(Reservation box)output(5)
- 736=Control box(Reservation box)output(6)
- 737=Control box(Reservation box)output(7)
- 738=Control box(Reservation box)output(8)
- 739=Control box(Reservation box)output(9)
- 740=Control box(Reservation box)output(10)
- 741=Control box(Reservation box)output(11)
- 742=Control box(Reservation box)output(12)
- 743=Control box(Reservation box)output(13)
- 744=Control box(Reservation box)output(14)
- 745=Control box(Reservation box)output(15)



746=Control box(Reservation box)output(16)

747=Control box(Reservation box)output(17)

748=Control box(Reservation box)output(18)

749=Control box(Reservation box)output(19)

4.3. Torch clean station programming

1. Check the interface No. on the IO board in the control cabinet which the torch cle an station has been connected to.see example below:

Green wire stand for "CUT WIRE", the interface No. Is "Y9"

Brown wire stand for "CLEAN TORCH", the interface No. Is "Y10"

Grey wire stand for "SPRAY OIL", the interface No. Is "Y10"



2. Set the soft ID for torch cleaning output command from this range. The interface No. are consistent with the HardID in the teach pendant.



Click: "IO Set"- "DO"-input "201" "202" "203" before Hard ID "9" "10" "11"-Click "Edit" at the right bottom corner-input "CUT WIRE" "CLEAN TORCH" "SPRAY OIL" to name each function.

LN	0 -1 World X 248.04 A Y 1097.15 B Z 585.57 C	2,49 U 48.59 V 4.86 W	17.42 free 1.11 0.00 0.0 0.0	QINGQIAN	NotRea	dy Alarm Re	set
2	Now Level 4		V09.05 200805	0-728	8-2-9-8	8	60 C
P	Les Out		MchLock	Servo	Reboot	Authorize	e rc
p			Install	Coor	Record	Safe Pos	
Pa	Password		Recipe	Transfer	Network	Language	
	Confirm	Change	Option	IO Set	Comm	Resource	
H			Tuning	Limit	Calibrate	CaliFix	
	Default HMI Sele	ct	Hardware	GearRatio	ServoParam	MainBody	AR



-									
LNC	0 -1 System	X 248.04 Y 1097.15 Z 585.57	A 2.49 U B 48.59 V C 4.86 W	17,42	free 0.0	QING		NotReady Alarm 50.0 % arnin	Reset
TRW	DI	DO	IA	A	0	TCI	Delete	Update	1
prog	AllUsed	SoftID	HardID	Inv	Force	State	Descrip	ot 🔨	dro
point	KeyBorad		6						arc
Param	SIO1730		8						coffision
Syner	SIO1732	201	9				CUT WIRE		8
gy	Com DO	202	10				CLEAN TOR	н	0
Track	Ether DO	203	11				SPRAY OIL		Qev
sys	Luici Do		12					$\mathbf{\mathbf{v}}$	Er-
			13						Stair .
			14					Edit	A REAL

Step1. Set the origin point as the 1^{st} point and record its location.

Click "Record"- "Fast", the PrvSpeed 30%, it means 30% moving speed, then click "ok".

LNC	0 -1 System	X 248,04 A World Y 1097.15 B Z 585.57 C	2.49 U 48.59 V 4.86 W	17,42 1.11 0.00	free 0.0 0.0	QINGQ	IAN , Q.	NotReady	Alarm arnin	Reset
TRU	QI	INGQIANG.tch	Save	BlockOP	Record	BasicCm	ExtCmd	ProdAct	23	1 miles
Drog	1	Fast:Joint Coor, PrvSp	eed=30	Dutput ID	0	On	Off On	Pulse		
P0	2	Fast:Joint Coor, PrvSp	eed=30							Parc
point	3	Line:World Coor, Prvs	Speed=4	OnAuto	oOff1 0	nAutoOf	f2 OnAu	toOff3		Al
	4	Set R:R130672=1		aram A(#1 V	Vait			~	coffision
Param	5	Wait:500(ms)		0		0	Wait I	nPos	Near	2
Syner	6	Set R:R130672=0		O_File		alast Car				Gend
gy 🚽	7	Set 0:0201=1 (CUT W	(IRE)			electicot				-
Track	8	Wait:500(ms)			c	en F	ars	Fast	\approx	Caretor and
	9	Set 0:0201=0 (CUT V	VIRE)		300	urve	Mid	Line	-	**
sys	10	Line:World Coor, Spe	ed=120	d						1
	Simp	le G Cut Copy	Paste	Up Dr	ackwa	arc Forwar	d Step	OK	Detail	and a

Step2. Move the welding torch above the wire cutting port and record its locati on.



Click "Record"- "Fast"- "OK"

LNC	0 Syste	-1 World	X 24 Y 109 Z 58	8.04 A 7.15 B 5.57 C	2.49 U 48.59 V 4.86 W	17,42 1.11 0.00	free 0.0 0.0	QINGQ		Q. NotRe 50.0	ady Alarm % arnin	Reset
S.	C	QINGQIA	NG.tch		Save	BlockOP	Record	BasicCm	d ExtC	md ProdA	kct 23	1
Drog	1	Fast:Jo	int Coo	r, PrvS	peed=30	Dutput II	0	On	Off	On Pulse		drop
pros	2	Fast:Jo	int Coo	r, PrvS	peed=30	-			T			1
point	3	Line:W	orld Co	oor, Pro	/Speed=4	OnAuto	oOff1 0	nAutoO	ff2 OI	nAutoOff:		-AD
	4	Set R:R	130672	2=1		aram A	(#1 N	/ait			~	coffsion
Param	5	Wait:5	00(ms)			0		0	Wait	InPos	Near	0
Syner	6	Set R:R	130672	2=0		O_File	e -				-	Cend
gy	7	Set O:0	0201=1	(CUT)	WIRE)			elect Co	or		\sim	-2
Track	8	Wait:5	00(ms)				C	en	Pass	Fast	×	Celui
eve	9	Set O:0	0201=0		WIRE)		300	urve	Mid	Line		1
sys	10	Line:W	orld Co	por, Sp	eed=1200							
	Simple	G	Cur	Сору	Paste	Up Dr	n Backwa	arc Forwa	rd St	ep Ok	Detail	- AR

Step3. Move the welding torch until the wire ball in the end down into the wire cutting port.

Click "Record"- "Line",the PrvSpeed=480 means the line moving speed 480mm/min-cli ck "OK".

LNC	0 Syste	-1 World X 248.04 A 2.49 U 17.42 free QINGQIAP	NotReady Alarm Rese	t
1 Pu		QINGQIANG.tch Save BlockOP Record BasicCmc ExtCmc	ProdAct 23	-
Drog	1	Fast:Joint Coor, PrySpeed=30%, Soft=0, Wait=0	1:	op
prog	2	Fast:Joint Coor, PrvSpeed=30%, Soft=0, Wait=0	2:	-
point	3	Line:World Coor, PrvSpeed=480, Soft=0, Wait=0	3:	-
	4	Set R:R130672=1	4: Coffse	on
Param	5	Wait:500(ms)	5: Nor 0	
Syner	6	Set R:R130672=0	6:	nd
gy	7	Set 0:0201=1 (CUT WIRE)	7: 🗸 🥥	
Track	8	Wait:500(ms)	8:	eive
	9	Set 0:0201=0 (CUT WIRE)	9: . 🞽 🍢	
sys	10	Line:World Coor, Speed=12000, Soft=0, Wait=0	10:	R.



Step4. Give a wire feeding start instruction.

Click "BesicCmd"- "Set R"-Input "130672" after "Reg ID",select "Absolute" for Value typ e,input "1" after "Value"

LNC	0 - Syster	-1 m	orld <u>Y</u> Z	24 109 58	8.04 A 7.16 B 5.58 C	2.49 U 48.59 V 4.86 W		17,42 1.11 0.00	fre 0.0	ee 0.0	QIN	GQI	y X	2.	NotReady	Alarm arnin	Reset
TRW	9	INGC	IANG	i.tch		Save	в	lockOP	Re	cord	Basic	Cene	ExtCm	hd	ProdAct	23	1
prog	1	Fast:	Joint	Coo	r, Prv	Speed=30		Mar	k	Jun	np	IJ	qmu	RJ	ump		drop
point	3	Line:	World	d Co	or, Pi	rvSpeed=4		Wait	I	Wai	tR	Se	tO	Se	et R	~	1 arc
Param	4	Set R	:R130	(672	2=1			InPo	s	Wa	it	Ca	II G	s	kill	~	coffsion
Syner	6	Set R	:R130	672	2=0			DynPo	os	loint	Rec	Wor	IdRec	C	oor	Near	Gene
gy Track	7	Set C	0:020	1=1	(CUT	WIRE)								-		~	-
TALK	8	Wait Set (:500(r	ns) 1=0	(CUT	WIRE)		2DCur	ve	Ce	n	Pa	ISS	F	ast	×	2
sys	10	Line:	World	d Co	oor, Sp	peed=1200	L	2.5Cur	ve	3DCU	irve	M	Id	-	ine	H	5.
	Simple	G	C	ut	Сору	Paste	Up	Dn		ckwar		ward			OK	Detail	20

LNC	0 Syste	-1 Wor	Id <u>Y</u> 10 Z 5	48.04 A 97.16 B 85.58 C	2.49 48.59 4.86	U 17 V 1 W (7, <u>42</u> 1,11 0.00	free 0.0 0.0	QIN	GQIA	9.	NotReady	Alarm arnin	Reset
TRW	(QINGQI	ANG.to	h	Save	Blo	ckOP	Record	Basic	Cmd	ExtCmd	ProdAct	23	-
Drog	1	Fast:Jo	oint Co	or, Prv	Speed=:	30		010					R	dro
P106	2	Fast:Jo	oint Co	or, Prv	Speed=:	30		Reg ID		1306	5/2	0		1
point	3	Line:W	orld C	oor, Pr	vSpeed	=4				_			\approx	arc
	4	Set R:	R13067	2=1			R	Value Typ	e	Abso	olute	-		COY.
Param	5	Wait:5	00(ms))				Value		1		1		Coffisier
Syner	6	Set R:	R13067	2=0									Near	Gene
gy	7	Set O:	0201=	1 (CUT	WIRE)			Wait			0	ms	V	0
Track	8	Wait:5	00(ms)	1				-1:Wait	Write	, -2:Fa	ist Write		V	Qel
	9	Set O:	0201=		WIRE)		0	utput at D	list	(0	mm,	×	à.
sys	10	Line:W	orld C	oor, Sp	eed=12	00							$\mathbf{\Sigma}$	5 ar
	Simple	G	Cut	Сору	Paste	Up	Dn	Backwa	rc Forv	vard	Step	OK	Detail	20



Step5. Set a wait time.

Click "Record"- input"500" below "Wait"- "OK"

LNC	0 - Syste	•1 Worl	d X 24 Y 109 Z 58	48.04 A 97.15 B 85.57 C	2,49 U 48.59 V 4,86 W	17.42 1.11 0.00	free 0.0 0.0	QING	QIAN	Q.	NotRea	dy Alarm <mark>%</mark> arnin	Reset
TRW	q	INGQIA	ANG.tcl	1	Save	BlockOP	Record	Basico	md Ext	md	ProdAc	t 23	1
prog	1	Fast:Jo	int Coo	or, Prvs	Speed=30	Dutput II	0	On	Off	On	Pulse		arop
point	3	Fast:Jo	orld Co	oor, Prvs	vSpeed=30	OnAuto	oOff1 0	nAuto	Off2 0	nAut	oOff3	\$	arc
Baram	4	Set R:R	13067	2=1		aram A(#1 \	Wait		Τ.		~	coffision
Param	5	Wait:5	00(ms)			0		500	Wait	1	nPos	Near	0
Syner	6	Set R:R	13067	2=0		O_File	-	elect (oor				Gend
61	7	Set O:0	0201=1	(CUT	WIRE)			elect		-			
Track	8	Wait:50	00(ms)				(Cen	Pass	1	Fast	V	elvi C
EVE	9	Set O:0	0201=0	(CUT	WIRE)		300	Curve	Mid		Line	Ť	1 to
sys	10	Line:W	orld Co	oor, Sp	eed=1200	-						Ľ	
_	Simple	G	Cut	Сору	Paste	Up Dr	Backw	arc Forv	ward S	tep	OK	Detail	20

Step6.Give an instruction the wire feeding process end.

Click "BasicCmd"-input "130672" after Reg ID,select "Absolute" for the Value Type,inpu t "1" for the Value,click "OK".



LNC	0 - Syste	1 World Y 1097.16 B 48.59 V Z 585.58 C 4.86 W	17 1 0	<u>.42</u> .11 .00	free 0.0 0.0	QIN	GQIAN	Q .	NotRead	Alarn Marnir	Reset
TRW	Q	INGQIANG.tch Save	Bloc	kOP	Record	Basic	Cmd Ex	tCmd	ProdAct	23	-
Drog	1	Fast:Joint Coor, PrvSpeed=30			D	1			-	F	drog
F0	2	Fast:Joint Coor, PrvSpeed=30			RegID		130672	2	0		1
point	3	Line:World Coor, PrvSpeed=4					1		_	\approx	arc
	4	Set R:R130672=1		- 1	Value Type		Absolu	te	-		OY I
Param	5	Wait:500(ms)			Value		0	(coffision
Syner	6	Set R:R130672=0								Near	X
gy	7	Set 0:0201=1 (CUT WIRE)			Wait		0	1	ns	V	
Track	8	Wait:500(ms)			-1:Wait V	Vrite,	-2:Fast \	Write		V	Qeve
SVIC	9	Set 0:0201=0 (CUT WIRE)		01	utput at Dis	t	Ro	m	ım.	Ý	2
sys	10	Line:World Coor, Speed=1200	1	-						Y ,	Har
-	Simple	G Cut Copy Paste I	Jp	Dn	Backwarc	Forwa	ard Sta	ep [ок	Detail	Z

Step7. give a wire cutting instruction on the system.

Click "BasicCmd" - "Set O" -input the software ID which stands for cut wire,here it i s "201"-select the status as "on" -click "OK".



LNC	0 - Syster	1 World	X 248 Y 1097 Z 585	8.04 A 7.16 B 5.58 C	2,49 48.59 4.86	U 17 V 1 W 0	<u>.42</u> .11	free 0.0 0.0	QING	AIQ	Q.	NotRead	Alarm arnin	Rese
TRW	Q	INGQIA	NG.tch		Save	Blo	ckOP	Record	Basic	Cmd Ex	tCmd	ProdAct	23	1
Drog	1	Fast:Jo	int Coo	r, Prvs	Speed=3	30		Output I		201				- dr
P.08	2	Fast:Jo	int Cool	r, Prvs	Speed=3	30		output h		201		On		1
point	3	Line:W	orld Co	or, Pr	vSpeed	=4						_	\approx	
	4	Set R:R	130672	=1				Status		On		-	~	coffsie
Param	5	Wait:50	00(ms)								_		Nan	0
Syner	6	Set R:R	130672	=0				Wait		0		ms	Near	Č.
gy	7	Set O:0	0201=1	(CUT	WIRE)			-1:Wait	t Write,	-2:Fast	Write		V	0
Track	8	Wait:5	00(ms)				0	utput at D	Dist	0		mm	X	Qe
EVE	9	Set O:0	0201=0	(CUT	WIRE)								\geq	in-
sys 🗸	10	Line:W	orld Co	or, Sp	eed=12	00							\mathbf{L}	Frair
-	Simple	G	Cut	Сору	Paste	Up	Dn	3a ckwa	rc Forw	ard S	tep	ОК	Detail	Z

Step8. Setting a wait time for the wire cutting process.

Click "Record"- input "500" below "Wait"-click "OK"

LNC	0 - Syster	1 Wor		248.04 097.16 585.58	A B B C	2.49 U 48.59 V 4.86 W	17.42 1.11 0.00	free 0.0	0.0	QINGO	AI	P.	NotReady	Alarm arnin	Reset
1 Pu	Q	INGQ	ANG.	tch		Save	BlockOP	Reco	ord	BasicCr	nd E	xtCmd	ProdAct	23	1
Drog	1	Fast:J	oint C	oor,	PrvS	peed=30	Dutput II		0	On	Of	ff On	Pulse		arop
P108	2	Fast:J	oint C	oor,	PrvS	speed=30									Parc
point	3	Line:	Vorld	Coor	, Pr	vSpeed=4	OnAut	oOff1	0	nAuto	Off2	OnAut	toOff3	~	- 10-
	4	Set R:	R1306	572=1	1		aram A	(#1	W	ait				~	coffsion
Param	5	Wait:	500(m	is)			0		5	00	Wa	it I	nPos	Near	0
Syner	6	Set R	R1306	572=0)		O_Fil	e	-	1					Gend
gy	7	Set O	:0201	=1 (0	UT	WIRE)		-	56	elect C	oor		-	$\mathbf{\sim}$	
Track	8	Wait:	500(m	ns)					C	en	Pas	s	Fast	\approx	C cevi
-	9	Set O	:0201	=0 (0	UT	WIRE)			BDC	urve	Mi	d	Line	-	*
sys	10	Line:	World	Coor	, Sp	eed=120	d	1			_			È	
	Simple	G	CL	ut C	ору	Paste	Up D	n Bad	:kwa	rç Forw		Step	OK	Detail	Jun and



Step9. Give an end instruction for the wire cutting process.

Click "Basic"- "Set O"- input "201"before the output ID-select the Satus as "Off"-click " OK".

LNC	0 - Syster	m	orld	X 1 Y 10 Z 1	248.04 097.16 585.58	A B C	2.49 U 48.59 V 4.86 V	U 17 / 1 V (7.42 1.11 0.00	free 0.0	0.0	QIN	GQIA	1	Q.	NotRea	ady %	Alarm arnin	Reset
TRW	Q	ING	QIA	NG.t	ch		Save	Blo	ckOP	Reco	ord	Basic	Cmd	ExtC	md	ProdA	ct	23	1
prog	1	Fast	:Joi	nt Co	bor, P	rvS	peed=3	0		Outp	ut IE)	20	01		2			drop
	2	Fast	:Joi	nt Co	por, P	rvS	peed=3	0						_	adulteration	Off			arc
point	3	Line	:Wo	orld (Coor,	Prv	Speed=	4	_						-			~	-
Daram	4	Set	R:R1	306	72=1					Sta	tus		Off			-		^	coffision
	5	Wai	t:50	0(ms	5)					14/-	ait			0		ms		Near	
Syner	6	Set	R:R1	1306	72=0						A/- 14	14/-:-	2.5	act M	Urito				Gend
БУ	7	Set	0:0	201=	=1 (CL	IT I	WIRE)			-1:	wan	vvrite	e, -2.F	dSL V	vrite	1		$\mathbf{\mathbf{x}}$	
Track	8	Wai	t:50	0(m	s)				(Output	at D	Dist		0		mm		\approx	ervi
272	9	Set	0:0	201=	=0 (CL	JT \	WIRE)											T	*
- J3	10	Line	:Wo	orld	Coor,	Sp	eed=120	00	-	-		-	_	-	-	-			
	Simple	G		Cut	Co	рy	Paste	Up	D							OK		Detail	AR.
-				-	-				-	-	-							-	

Step10. Raise the welding torch and let it leave the cutting port.

Click "BasicCmd"- "Line"-input the speed as "20mm/s",click "OK",then it shows as 120 0mm/min



LNC	0 - Syster	1 Worle	X 24 Y 109 Z 58	8.04 A 7.16 B 5.58 C	2,49 U 48.59 V 4.86 W		17,42 f 1,11 0.00 0.0	ree 0 0.0	QIN	GQIAN	2. NotRe 50.0	ady %	Alarm arnin	Reset
FRW	Q	INGQIA	NG.tch	n	Save	в		ecord	Basi	Cmc ExtCr	nd ProdA	Act	23	1
prog	2	Fast:Jo	int Coo	or, Prvs	Speed=30 vSpeed=4		Mark	Jui	mp	I Jump	R Jump			drop
point	4	Set R:R	130672	2=1			Wait I	Wa	it R	Set O	Set R		~	arc arc
Param	5	Wait:5	00(ms)	2=0			InPos	W	ait	Call G	Skill		^	coffision
Syner gy	7	Set O:0	0201=1	(CUT	WIRE)		DynPos	Join	tRec	WorldRec	Coor		Near V	
Track	9	Set O:0	0201=0) (CUT	WIRE)		2DCurve	Ce	en	Pass	Fast		¥	Qelu
sys	10 11	Line:W Fast:Jo	orld Co	oor, Sp or, Prv	eed=1200 Speed=30	L	2.5Curve	3DC	urve	Mid	Line		Y	*
_	Simple	G	Cut	Сору	Paste	U	Dn	lackwa			OK OK	1	Detail	- and

Step11. Record the current location.

Click "Record"- "Fast"- "OK"

	QINGQIANG.tch	Save	BlockOP	Record	BasicCmd	ExtCmd	ProdAct	
11	Fast:Joint Coor, Prv	Speed=3	0%, Soft=0	, Wait=0		1	1:	ſ
12	Fast:Joint Coor, Prv	Speed=3	0%, Soft=0	, Wait=0		1	2:	6
13	Fast:Joint Coor, Prv	Speed=3	0%, Soft=0	, Wait=0		1	3:	
14	Set 0:0202=1 (CLE	AN TORC	н)			1	4:	

Step12. Move the welding torch above the torch clean port and record this loca tion.

Click	"Basic	Cmd"-	"Fast"-	"OK"
-------	--------	-------	---------	------



LNC	0 Syste	-1 World X 248.04 A World Y 1097.16 B Z 585.58 C	2.49 U 48.59 V 4.86 W	17,42 1,11 0.00	free 0.0 0.0	QINGQI	· ,Q.	NotReady	Alarm arnin	R
5	(QINGQIANG.tch	Save	BlockOP	Record	BasicCmd	ExtCmd	ProdAct	23	
ARW	11	Fast:Joint Coor, Prv	/Speed=30	%, Soft=0	, Wait=0		1	1:		
prog	12	Fast:Joint Coor, Prv	/Speed=30	%, Soft=0	, Wait=0		1	2:	-	1
point	13	Fast:Joint Coor, Pry	Speed=30	%, Soft=0	, Wait=0		1	3:	\sim	
	14	Set 0:0202=1 (CLE	AN TORCH)			1	4:	~	-

Step13. Carefully move the welding torch to make the nozzle down into the cl eaning port,adjust the nozzle and make it close to the locater block,then record this location.



Click "Basic Cmd"- "Fast"- "OK"



0 -1 System	World Y 1097.16 B Z 585.58 C	2.49 U 48.59 V 4.86 W	17,42 1,11 0.00	free 0.0 0.0	QINGQI	· ,Q.	NotReady	Alarm arnin
QI	NGQIANG.tch	Save	BlockOP	Record	BasicCmd	ExtCmd	ProdAct	23
11	Fast:Joint Coor, Prv	Speed=30	%, Soft=0	, Wait=0		1	1:	
12	Fast:Joint Coor, Prv	Speed=30	%, Soft=0	, Wait=0		1	2:	
13	Fast:Joint Coor, Prv	Speed=30	%, Soft=0	, Wait=0		1	13:	\sim
14 !	Set 0:0202=1 (CLE)	AN TORCH	I) 👘			1	14:	~
	0 -1 System QI 11 F 12 F 13 F	0 -1 World X 248.04 A Y 1097.16 B Z 585.58 C QINGQIANG.tch 11 Fast:Joint Coor, Prv 12 Fast:Joint Coor, Prv 13 Fast:Joint Coor, Prv 14 Set 0:0202=1 (CLE)	0 -1 World X 248.04 A 2.49 U System Y 1097.16 B 48.59 Y Z 585.58 C 4.86 W QINGQIANG.tch Save 11 Fast:Joint Coor, PrvSpeed=30 12 Fast:Joint Coor, PrvSpeed=30 13 Fast:Joint Coor, PrvSpeed=30 14 Set 0:0202=1 (CLEAN TORCH	0 -1 World X 248.04 A 2.49 U 17.42 I System Y 1097.16 B 48.59 V 1.11 I System Z 585.58 C 4.86 W 0.00 QINGQIANG.tch Save BlockOP 11 Fast:Joint Coor, PrvSpeed=30%, Soft=0 12 Fast:Joint Coor, PrvSpeed=30%, Soft=0 13 Fast:Joint Coor, PrvSpeed=30%, Soft=0 14 Set 0:0202=1 (CLEAN TORCH)	0 -1 World X 248.04 A 2.49 U 17.42 free System World Y 1097.16 B 48.59 V 1.11 0.0 0.0 0.0 QINGQIANG.tch Save BlockOP Record 11 Fast:Joint Coor, PrvSpeed=30%, Soft=0, Wait=0 Nait=0 12 Fast:Joint Coor, PrvSpeed=30%, Soft=0, Wait=0 Nait=0 13 Fast:Joint Coor, PrvSpeed=30%, Soft=0, Wait=0 Nait=0 14 Set 0:0202=1 (CLEAN TORCH) Vait=0	0 -1 World X 248.04 A 2.49 U 17.42 free QINGQIA System Y 1097.16 B 48.59 Y 1.11 0.0 0.0 QINGQIA QINGQIANG.tch Save BlockOP Record BasicCmd 11 Fast:Joint Coor, PrvSpeed=30%, Soft=0, Wait=0 Yait=0 Yait=0	0 -1 World X 248,04 A 2.49 U 17,42 free QINGQIAN QINGQIAN Y 1097,16 B 48.59 Y 1.11 0.0 0.0 QINGQIAN Presson QINGQIAN Presson Presson QINGQIAN Save BlockOP Record BasicCmd ExtCmd 11 Fast; Joint Coor, PrvSpeed=30%, Soft=0, Wait=0 1 1 1 1 Fast; Joint Coor, PrvSpeed=30%, Soft=0, Wait=0 1 1 1 1 1 Fast; Joint Coor, PrvSpeed=30%, Soft=0, Wait=0 1 <td>0 -1 World X 248.04 A 2.49 U 17.42 free QINGQIAI NotReady System Y 1097.16 B 48.59 Y 1.11 0.0 0.0 QINGQIAI NotReady 50.0 % QINGQIANG.tch Save BlockOP Record BasicCmc ExtCmd ProdAct 11 Fast:Joint Coor, PrvSpeed=30%, Soft=0, Wait=0 11: 11: 11: 12: 12 Fast:Joint Coor, PrvSpeed=30%, Soft=0, Wait=0 12: 13: 13: 13: 14 Set 0:0202=1 (CLEAN TORCH) 14: 14: 14: 14:</td>	0 -1 World X 248.04 A 2.49 U 17.42 free QINGQIAI NotReady System Y 1097.16 B 48.59 Y 1.11 0.0 0.0 QINGQIAI NotReady 50.0 % QINGQIANG.tch Save BlockOP Record BasicCmc ExtCmd ProdAct 11 Fast:Joint Coor, PrvSpeed=30%, Soft=0, Wait=0 11: 11: 11: 12: 12 Fast:Joint Coor, PrvSpeed=30%, Soft=0, Wait=0 12: 13: 13: 13: 14 Set 0:0202=1 (CLEAN TORCH) 14: 14: 14: 14:

Step14. Give a torch cleaning start direction.

Click "Basic Cmd"- "Set O"- input "202" before Output ID-select the status as "On"-cli ck "OK".(here 202 stands for the soft ID of the torch clean)



Step15. Setting a wait time for torch clean process.

Click "Basic Cmd"- "Wait"- input "500" ms-click "ok"



LNC	0 Syste	-1 World X 248.04 A Y 1097.16 B Z 585.58 C	2.49 U 48.59 V 4.86 W	17,42 1.11 0.00	free 0.0 0.0	QINGQI	· <u>)</u> Q.	NotReady	Alarm arnin
5	1	QINGQIANG.tch	Save	BlockOP	Record	BasicCmd	ExtCmd	ProdAct	23
ARW	11	Fast:Joint Coor, Pro	vSpeed=30	%, Soft=0	, Wait=0		1	1:	
prog	12	Fast:Joint Coor, Pro	vSpeed=30	%, Soft=0	, Wait=0		1	12:	
point	13	Fast:Joint Coor, Pro	vSpeed=30	%, Soft=0	, Wait=0		1	13:	~
	14	Set 0:0202=1 (CLE	AN TORCH	I) 🔍			1	14:	~
Param	15	Wait:500(ms)		-			1	15:	Near

Step16.Give an end instruction of the torch clean process.

Click "BasicCmd"-input "202" after Output ID, select "Off" for Status.

LNC	0 - Syster	1 World	X 244 Y 109 Z 58	8.04 A 7.16 B 5.58 C	2,49 U 48.59 V 4.86 W	17,42 1.11 0.00	free 0.0 0.0	QINGQIA	ų (Q .	NotRead	Alarm arnin	Reset
FRW	Q	INGQIA	NG.tch		Save	BlockOP	Record	BasicCmd	ExtCmd	ProdAct	23	1
DEOG	7	Set 0:0	201=1	(CUT	WIRE)		Output II	2	12			drop
prog	8	Wait:50	0(ms)				Output it		1	Off		1
point	9	Set 0:0	201=0	(CUT	WIRE)					- R	~	
	10	Line:Wo	orld Co	oor, Sp	eed=1200		Status	Off		-	~	coffsion
Param	11	Fast:Joi	nt Coo	r, Prv	Speed=30						Near	0
Syner	12	Fast:Joi	nt Coo	r, Prv	Speed=30		Wait		0	ms		Qend
gy┯	13	Fast:Joi	nt Coo	r, Prv	Speed=30		-1:Wait	Write, -2:F	ast Write		~	9
Track	14	Set O:0	202=1	(CLEA	N TORCH	0	utput at D	Dist	0	mm	Y	Qem
	15	Wait:50	00(ms)								Ť	1×
sys	16	Set O:0	0202=0) (CLE/	N TORCH	10.35					-	ar
	Simpl	e G	Cut	Сору	Paste	Up Dr	Backwa	rc Forward	Step	ОК	Detail	Z

Step17-Step 22. See the Step7-Step13 for reference.



~	-	[2] 20230[C	4.00 [1	0.00	0.0 0.0		*	50.0 9	arnin
ZRU		QINGQIANG.tch	Save	BlockOP	Record	BasicCmd	ExtCmd	ProdAct	23
Drog	15	Wait:500(ms)					1	5:	
P105	16	Set 0:0202=0 (CLEA	N TORCH	1)			1	6:	
point	17	Fast:Joint Coor, Prv	Speed=30)%, Soft=0,	, Wait=0		1	7:	\approx
	18	Fast:Joint Coor, Prv	Speed=30	%, Soft=0,	, Wait=0		1	8:	
Param	19	Fast:Joint Coor, Prv	Speed=30	%, Soft=0,	Wait=0		1	9:	
Syner	20	Set 0:0203=1 (SPRA	Y OIL)				2	0:	Near
gy	21	Wait:500(ms)					2	1:	V
Track	22	Set 0:0203=0 (SPRA	Y OIL)		*.		2	2:.	~
svs	23	Fast:Joint Coor, Prvs	peed=30	%, Soft=0,	Wait=0		2	3: .	× ·

Step23. Raise the welding torch above the oil spraying port and record this point.

Click: Fast "Record"- "Fast"- "OK".

2			1 100 11	0.00		A DESCRIPTION OF THE REAL	*	50.0 9	arnir
ZRU		QINGQIANG.tch	Save	BlockOP	Record	BasicCmd	ExtCmd	ProdAct	23
Drog	15	Wait:500(ms)					1	5:	
P106	16	Set 0:0202=0 (CLE	AN TORCH	1)			1	6:	
point	17	Fast:Joint Coor, Prv	Speed=30	%, Soft=0,	Wait=0		1	7:	\$
	18	Fast:Joint Coor, Prv	ast:Joint Coor, PrvSpeed=30%, Soft=0, Wait=0						~
Param	19	Fast:Joint Coor, Prv	Speed=30	%, Soft=0,	Wait=0		1	9:	-
Syner	20	Set 0:0203=1 (SPRA	Y OIL)				2	0:	Near
gy	21	Wait:500(ms)					2	1:	V
Track	22	Set 0:0203=0 (SPRA	Y OIL)		·.		2	2:.	V
svs	23	Fast:Joint Coor, Prv	2	3: .	V				

4.4. Automatic torch cleaning programming

1. First create a whole set program of torch cleaning/wire cutting/oil spraying . (Torch clean programming pls see the *JHY control system manual* for reference)



Then set an "O file export" for this program.

After the torch cleaning program created, click BlockOP", input a number \geq 3000 for the O file, make the status shows as "Return" then click "All" at the right top corner, at I ast click "Export".



2. Creating a counting program in the welding program.

Step 1: click "BasicCmd"- "Mark", set a mark "1", click "OK".

LNC	2 - Syster	1 Motor	A1 A2 A3	0.61 A4 5.77 A5 0.03 A6	-0.00 U 90.00 V 0.00 W	0.00	free 0.0 0.0	ZHU.tch	2.	Maintain 50.0 %	Alarm arnin	Reset
5		ZHU.t	ch		Save	BlockOP	Record	BasicCmd	ExtCmd	ProdAct	14	drop
Drog	1	Mark:1					R					
prog	2	Fast:Joi	nt Coo	or, PrvS	peed=30)						arc
point	3	Fast:Joi	nt Coo	or, PrvS	peed=30)						AU
	4	Fast:Joi	nt Coo	or, PrvS	peed=30		Mark		1		~	collision
Param	5	Arcing:	Arc Ol	N, 1, _,		, _	mark				Near	0
Syner	6	Line:Wo	orld Co	oor, Pry	/Speed=	4	Mark 0 is	start line w	hen repe	at.		Gend
gy	7	Arcing:/	Arc OI	FF, 1, _,		-					~	2
Track	8	Fast:Joi	nt Coo	or, PrvS	peed=3	D					V	eivi
svs	9	Set R:R	100++	<5							-	Er-
-	10	R jump:	R100=	==0, Ma	rk=0						Y	air
	Simple	G	Cut	Сору	Paste	Up Di	ackwa	rc Forward	Step	ОК	Detail	「「「「「「」」

Step 2-Step 8 is the straight line welding program.

Step 9: Click "BasicCmd"- "Set R",input 100 for "Reg ID" and 5 for "Value", choose " Add1,cycle " as Value Type, click "OK".



LNC	2 - Syster	1 Moto	A1 A2 A3	0.61 A4 5.77 A5 -0.03 A6	-0.00 90.00 0.00	U V W	0.00	free 0.0 0.0	ZHU.	.tch	19.	Maintain 50.0 9	Alarm arnin	Reset
S.		ZHU.	tch		Save	Blo	ockOP	Record	Basic	Cmd	ExtCmd	ProdAct	14	A
Drog	1	Mark:1						Reg ID		10	0			diop
prog	2	Fast:Joi	int Cod	or, PrvS	peed=3	0		NCG ID		10	-	0		-
point	3	Fast:Jo	int Cod	or, PrvS	peed=3	0							\sim	
	4	Fast:Joi	int Cod	or, PrvS	peed=3	0	1	Value Typ	e	Add	1, Cycle	• -	~	E H
Param	5	Arcing:	Arc OI	N, 1, _,		-		Value		5		1	Neer	
Syner	6	Line:W	orld C	oor, Pr	Speed	=4							Inear	Qend
gy	7	Arcing:	Arc Of	FF, 1, _,		_		Wait			0	ms	V	
Track	8	Fast:Joi	int Cod	or, PrvS	peed=3	0							V	Qeive
EVE	9	Set R:R	100++	<5									V	
sys	10	RJump	:R100=	=0, Ma	rk=0								Y	Fair
	Simple	G	Cut	Сору	Paste	Up	Dn	3ackwa	rc Forv	vard	Step	ОК	Detail	複幾

Step 10: click "BasicCmd"- "R Jump",input 100 for "Reg ID",select "Equal" as "Cmp R ule",select "Const" as "Cmp To",input 0 for Value,select "Mark" as Row type, input 0 f or "Row ID",click "OK".

LNC	2 -1 System	Motor A2	0.51 A4 5.77 A5 -0.03 A6	-0.00 U 90.00 V 0.00 W	0.0		free 0.0 0.0	ZHU	.tch	Q .	50.0	% arnin	Reset
5		ZHU.tch		Save	Bloc	KOP	Record	Basic	Cmd	ExtCmd	ProdAc	t 14	dror
Drog	1 1	Mark:1				J	udgeWhe	n(Bloc	kLeft)	,	0		
P	2 1	Fast:Joint Co	or, Prv	Speed=30		- 6151		Service Services					arc
point	3	Fast:Joint Co	or, Prv	Speed=30			Reg ID		10		0		AD
	4	Fast:Joint Co	or, Prv	Speed=30								~	coffision
Param	5	Arcing:Arc O	N, 1, _				Cmp Rule	•	Equa	ıl	-	Near	0
Syner	6	Line:World (Coor, Pi	vSpeed=4			Cmp To		Cons	t	-		Gend
gy	7	Arcing:Arc C	DFF, 1,				Value		0		0	V	
Track	8	Fast:Joint Co	oor, Prv	Speed=30			Dave Trans		L.			X	Qeivi
	9	Set R:R100+	+<5				Row Type		Mark		•		-
sys	10	R Jump:R100	0==0, M	lark=0		R	Row ID/Nu	Im		0		Y	Kair
	Simple	e G Cut	t Copy	/ Paste	Up	Dn	3ackwa	rc Forv	ward	Step	ок	Detail	マーで

Step11: click "BasicCmd"- "Jump", set the mark as 1, click "OK".



LNC	2 Syste	-1 Motor A2 A3 -4	0.61 A4 5.77 A5 0.03 A6	-0.00 U 90.00 V 0.00 W	0.00 0.00 0.00	free 0.0 0.0	ZHU.tch	19.	Maintair	a Alarm Garnin	Res
S.R.W		ZHU.tch		Save	BlockOP	Record	BasicCmd	ExtCmd	ProdAct	14	
Drog	2	Fast:Joint Coo	r, PrvS	peed=30	J	udgeWhe	n(BlockLef	t)	0		
pros	3	Fast:Joint Coo	r, PrvS	peed=30							0
point	4	Fast:Joint Coo	r, PrvS	peed=30						\approx	
	5	Arcing:Arc ON	I, 1, _, .								
Param	6	Line:World Co	or, Prv	Speed=4	t						coffie
Syner	7	Arcing:Arc OF	F, 1, _,			D				Near	-0
gy	8	Fast:Joint Coor	r, PrvSp	peed=30		ком Туре	Mar	k			
Track	9	Set R:R100++<	5		R	ow ID/Nur	m	1			ŏ
SVS	10	R Jump:R100==	=0, Mar	rk=0						\mathbf{i}	
-)5	11	Jump:Mark=1	2		Re	epeat Time	25	0			K
	Simple	G Cut	Сору	Paste L	Jp Dn	3ackwar	Forward	Step	OK [Detail	- A

Step12: click "BasicCmd"- "Mark",set a mark "0",click "OK"

NC	2 -1	Motor	1 0	.61 A4	-0.00 U 90.00 V	0.00	free 0.0 0.0	ZHU.tch	19.	Maintain	Alarm arnin	Reset
2	System	ZHU.to	ch	103 Proj	Save	BlockOP	Record	BasicCmd	ExtCmd	ProdAct	14	drop
ERW	6	Line:Wo	rld Co	or, Prv	Speed=4	4						
prog	7	Arcing:A	rc OF	F, 1, _,		-						arc
point	8	Fast:Join	nt Coo	r, PrvS	peed=30	D						
	9	Set R:R1	00++<	:5			Mark		0		~	coffision
Param	10	R Jump:	R100=	=0, Ma	rk=0		WIGTK				Near	
Syner	11	Jump:Ma	ark=1				Mark 0 is	start line v	when repe	at.		Gend
gy	12	Mark:0				R					~	-2
Track	13	FileCall	:0_Fil	e, _, _,	_, _, 300	D					×	eivi
C.V.C	14	Jump:M	ark=1								-	E-
sys	*										Ľ	air
	Simple	G	Cut	Сору	Paste	Up D	n Backwa	arc Forward	d Step	ОК	Detail	「「「「「「」」

Step13: Click "ExtCmd"- "FileCall"- "O_file", input the OFileID: 3000.



ZHU.tch Save BlockOP Record BasicCmd ExtCind ProdAct 6 Line:World Coor, PrvSpeed=4 Coor Matrix Additional Axis 7 Arcing:Arc OFF, 1, _, Tool Stack CoSwing 9 Set R:R100++<5 Act Block Pick-Place Tracker Follow 9 Set R:R100++<5 Path Param Handshake d Machine Fol Syner 10 R Jump:R100==0, Mark=0 SafePos Sensor Stop Wear mackup Flow Control -Layer-Path(Pc Track Repeat i-Layer-Path(C Torque App Remote Mode Ouch Find Coo Int Wait Exf racker Find Po Sys 14 Jump:Mark=1 Logic Cal FileCall Vision App	14 drop drop arc cottision Near Cend Cend Cend
RRW 6 Line:World Coor, PrvSpeed=4 Coor Matrix Additional Axis prog 7 Arcing:Arc OFF, 1, _ , _ , _ , _ , _ , _ , _ , _ , _ Tool Stack CoSwing point 8 Fast:Joint Coor, PrvSpeed=30 Act Block Pick-Place Tracker Follow 9 Set R:R100++<5	Near Coffision Near Coffision Near Coffision
prog 7 Arcing:Arc OFF, 1, _, _, _, _, _, _ point 8 Fast:Joint Coor, PrvSpeed=30 9 Set R:R100++<5	A arc arc coffision Near Cend Cend Cend Cend Cend
point8Fast:Joint Coor, PrvSpeed=30Act BlockPick-PlaceTracker Follow9Set R:R100++<5	Near Collision Near Collision Near Collision
9 Set R:R100++<5	Near Coffision Near Coffision Coffision Coffision Coffision Coffision
Param 10 R Jump:R100==0, Mark=0 SafePos Sensor Stop Wear mackup Syner 11 Jump:Mark=1 Flow Control -Layer-Path(Pc Track Repeat 12 Mark:0 i-Layer-Path(C Torque App Track 13 FileCall:0_File, _, _, _, 3001 Remote Mode ouch Find Coo sys 14 Jump:Mark=1 Logic Cal FileCall Vision App	Near
Syner 11 Jump:Mark=1 Flow Control -Layer-Path(Pc Track Repeat BY 12 Mark:0 i-Layer-Path(C Torque App Track 13 FileCall:0_File, _, _, _, 3001 Remote Mode ouch Find Coo 14 Jump:Mark=1 Int Wait Exf racker Find Po * Logic Cal FileCall Vision App	V Cend
BY 12 Mark:0 i-Layer-Path(C Torque App Track 13 FileCall:0_File, _, _, _, 3001 Remote Mode ouch Find Coo 14 Jump:Mark=1 Int Wait Exf racker Find Po * Logic Cal FileCall Vision App	
Track 13 FileCall:O_File, _, _, _, 3001 Remote Mode ouch Find Coo 14 Jump:Mark=1 Int Wait Exf racker Find Po * Logic Cal FileCall Vision App	
Sys 14 Jump:Mark=1 Int Wait Exf racker Find Po * Logic Cal FileCall Vision App	
* Logic Cal FileCall Vision App	- Stair
Simple G Cut Copy Paste Up Dn Backward Forward Step OK De	etail S
	模型
LNC 2 -1 Motor A2 5.77 A5 90.00 V 0.00 G.0 0.0 CHU.tch 33 -0.03 A6 0.00 W 0.00 0.0 0.0 CHU.tch 50.0 %	Alarm Reset
ZHU.tch Save BlockOP Record BasicCmd ExtCmd ProdAct	14
6 Line:World Coor, PrvSpeed=4 O_File RelaPage	
7 Arcing:Arc OFF, 1, _, _, _	~ Parc
point 8 Fast:Joint Coor, PrvSpeed=30	
9 Set R:R100++<5	∧ Coffision
10 R Jump:R100==0, Mark=0	Near O
Syner 11 Jump:Mark=1	Qend
12 Mark:0	
ITack 13 FileCall:O_File, _, _, 300(Qeivi
sys 14 Jump:Mark=1	
	- Kair
Simple G Cut Copy Paste Up Dn Backwart Forward Step OK De	etail

Step 14: Click "BasicCmd"- "Jump", select "Mark" as the Row ID/Type, input the mark n umber:1.



LNC	2 - Syster	1 Motor A2 5.77 A5 A3 -0.03 A6	-0.00 U 90.00 V 0.00 W	0.00	free 0.0 0.0	ZHU.tch)Q.	Maintain	Alarm	Reset
2		ZHU.tch	Save	BlockOP	Record	BasicCmd	ExtCmd	ProdAct	14	drop
RIN	6	Line:World Coor, Pr	vSpeed=4		JudgeWhe	n(BlockLef	it)	0		
prog	7	Arcing:Arc OFF, 1,								arc
point	8	Fast:Joint Coor, Prv	Speed=30							
-	9	Set R:R100++<5							~	collision
Param	10	R Jump:R100==0, M	lark=0	*					Near	-0
Syner	11	Jump:Mark=1			Row Typ	e Ma	rk	-		Gend
gy	12	Mark:0								-2
Track	13	FileCall:O_File, _,	_, _, _, 300		Row ID/N	um	1 .		X	eivi
svs	14	Jump:Mark=1			Repeat Tin	nes	0		Ť	Er-
5)5	*									air
	Sim	ole G Cut Cop	py Paste	Up [On Backwa	arc Forward	d Step	ОК	Detail	マジョン

4.5 The usage of reservation box

Click "LNC"- "Param"- "RSV"

The number "0" stands for No.1 Reservation box

The number "1" stands for No.2 Reservation box

Click "..." after the file name, then choose a file to connect it with No.1 Reservation b ox.

Choose another file to connect it with No.2 Reservation box.

	0 Syst	-1 World X -31.06 A Y 855.96 B Z 733.75 C	-0.01 U 18.38 V 0.19 W	0.00	free	0.0 666.	tch	NotRead	Alarm	Reset
sched	0	ervation Del Select	172939	/ 0	C	urRow	4	Run R	eserv	
ule	0	YY1.tch		0	10					drop
RSV Se	1	YY2.tch		0	11				U	1 ale
5	2			0	12				0	arc
	3			0	12				0	
				0	13				0	collision
	4	China Statistics		0	14	-	. de la com		0	0
The second s	-		7		-				0	(())



RSV SET (Reservation Set):

Click "RSV" to set the reservation parameter.

Reservation start sec:

This means you need to press "Start" buttons for 0.5s,then the program begin to star t running.the time can be changed as you need.



Reservation cancel sec:

This means you need to press "Start" buttons for 0.05s,then the program begin to st op running.the time can be changed as you need.



Reservation start sec	500 ms	
Reservation cancle sec	50 ms	
Reservation times pro	g	
Reservation times pro urrent number of times	9g 8	
Reservation times pro urrent number of times Number of arrivals	9g 8 50	

Reservation times prog.

Number of arrivals: this means when the programs runs for 50 times, then it will jump to another program.

Such as jump to the Torch clean program when it reach 50s

Program name:

This is the program name which would jump to from current program