Making the most ideal and practical product to service CNC world

NEW15/18iM Controller

Installation Guide

CHENGDU NEWKer CNC-TECHNOLOGY CO.,LTD

1.NEWKer Model

➢ Model Explanation

NEW 1000 MD Ca - 4

1 2 3 4 5

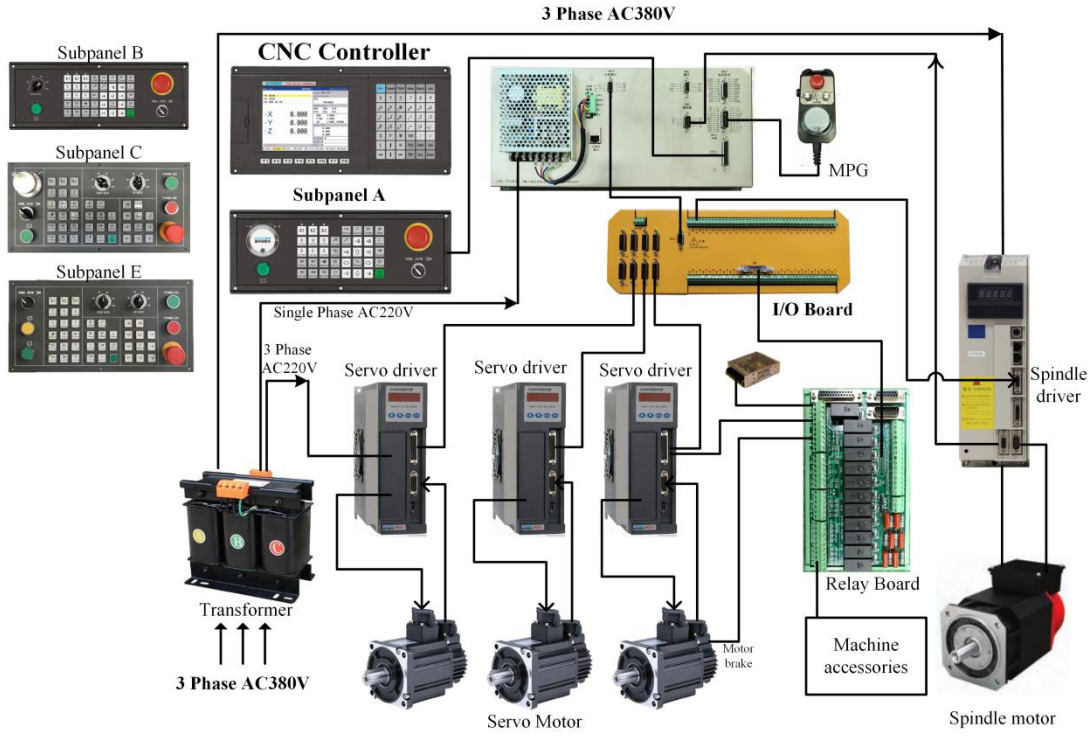
No.	Item	Description	Model meaning
1	Plant code	NEW	NEWKer product
2	Series code	990: integrated panel model; 1000: Standard panel model; 1500: Vertical panel model; 16i: Bus type integrated panel model; 18i: Bus type standard panel model; 15i:Bus type vertical panel model;	1000 series standard panel model
3	Application	TD: Lathe MD: Milling machine Mi: Milling machine with ATC function(1000/1500 series) T: Bus type for Lathe M: Bus type for milling machine Mi: bus type for milling machine with ATC function(18/15 series)	Milling controller
4	Function	Ca: incremental function(990/1000/1500 series) Cb: absolute function(990/1000/1500 series)	Incremental function
5	Axis number	2: 2 axis(XZ) 3: 3 axis(XYZ/XZC) 4: 4 axis(XYZA/XZCA) 5: 5 axis(XYZAB/XZCAB) 6: 6 axis(XYZABC/XZYABC) 7: 7 axis(XYZABCXs/XZYABCXs) 8: 8 axis(XYZABCXsYs/XZYABCXsYs)	4 axis(XYZA)

2. Controller Package List

No.	Item	Specification
1	Main panel	☐ NEW990T ☐ NEW990M ☐ NEW1000M ☐ NEW1000T ☐ NEW1500M ☐ NEW1500T
2	Sub panel	☐ NEW1000M-A ☐ NEW1000T-A ☐ NEW1000M-B ☐ NEW1000T-B ☐ NEW1000M-C ☐ NEW1000T-C ☐ NEW1000M-E ☐ NEW1000T-E ☐ NEW1500M-A ☐ NEW1500T-A ☐ NEW1500M-B ☐ NEW1500T-B
3	Power supply	☑ RD-65B
4	CN3(I/O1)	☐ 5 meters
5	CN4(I/O3)	☐ 5 meters
6	CN5(XYZ driver signal)	☐ 5 meters
7	CN6(AB driver signal)	☐ 5 meters
8	CN8(Power input)	☐ 5 meters
9	CN9(SP-encoder input)	☐ 5 meters
10	CN10(I/O2)	☐ 5 meters
11	CN11(MPG connection)	☐ Connector ☐ MPG
12	CN13(Feedback input)	☐ 5 meters
13	CN15(Sub panel connection)	☐ 0.8 meters
14	CN16(I/O3)	☐ 5 meters
15	Relay board	☐ NEWKer-335P
16	IO Board(Bus type only)	☐ NEWKer-318E

Attention: please check package according to package list. Above items are included according to order, not all involved. if any customize requirements, please contact NEWKer staff

3. Controller connection

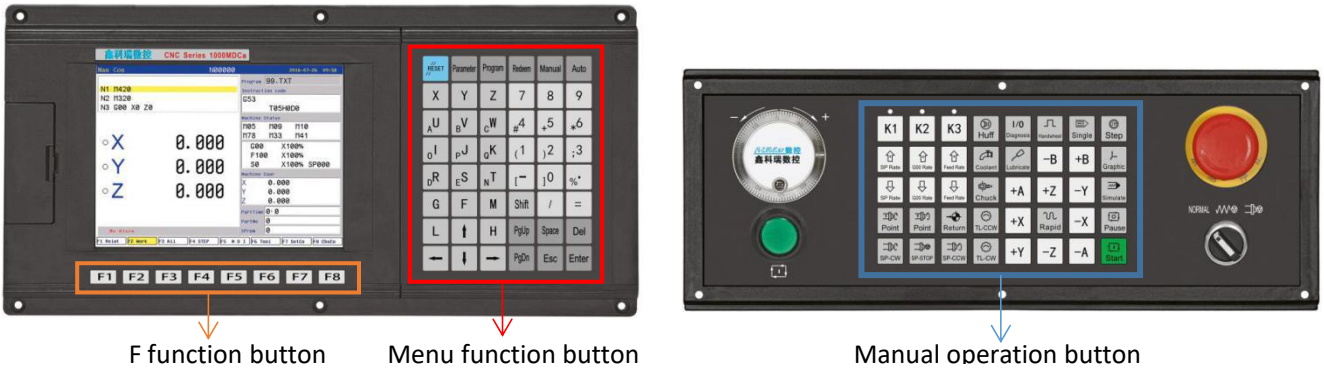


NEW18iM-3 axis connection

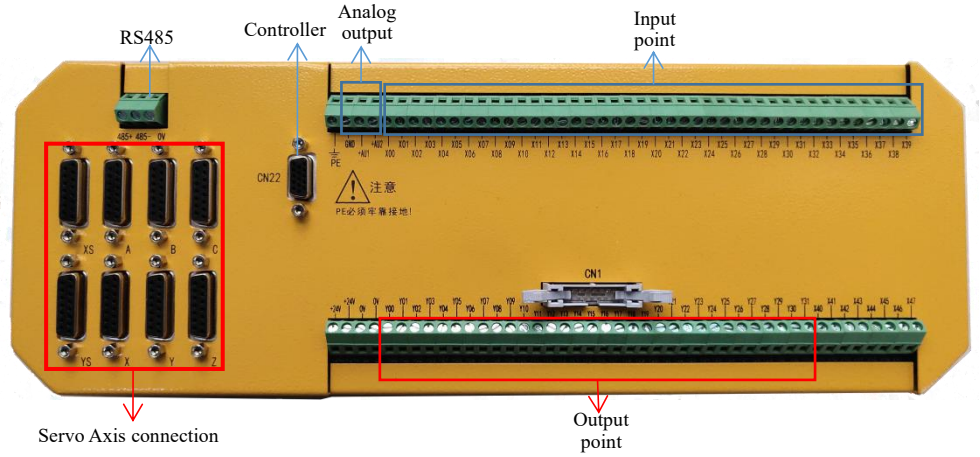
Note: Relay Board is optional, if without relay board, please connect IO according following IO chart.

4. Panel operation

A) NEW1000 series panel



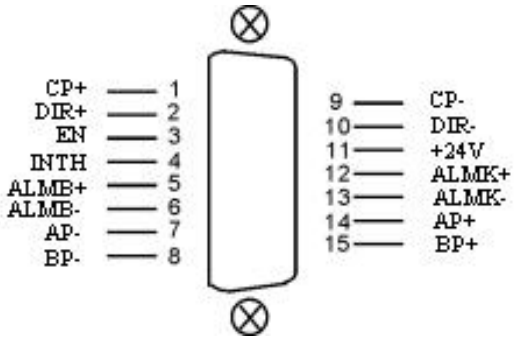
B) IO Board



4. Servo axis control

Note: if purchase full kit from NEWKer, cable of driver connection is ready. Just check label on the cable and connect it with driver.

A) XYZABCXsYs Servo drive

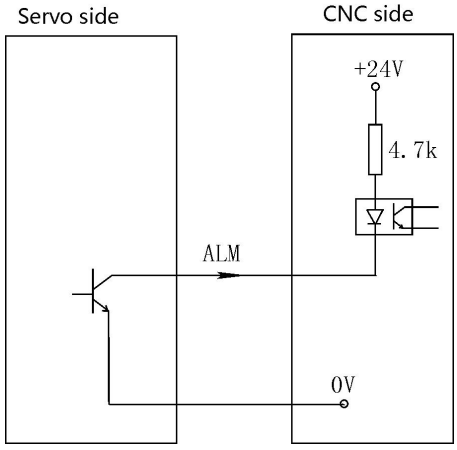


XYZABCXsYs Servo driver control signal DB15 female socket				
Signal	Pin	I/O	Function	Effective level
CP+/-	1/9	OUT	Pulse signal	5V
DIR+/-	2/10	OUT	Direction signal	5V
EN/INTH	3/4	OUT	Enable/Alarm reset	0V
+24V/0V	11/13	OUT	24V/0V	24V/0V
BP+/-	15/8	IN	Encoder feedback B signal	5V
AP+/-	14/7	IN	Encoder feedback A signal	5V
ALMB+/-	6/5	IN	Servo Alarm(Normal close)	0V
ALMK+/-	12/13	IN	Servo Alarm(Normal open)	0V

Note: 1) please connect servo alarm signal according to driver configuration, and adjust Other parameter P17 and P17-1;

2) Enable signal is the same as output Y16, and default setting is without enable output. If required, please add PLC ladder for Y16;

B) Driver alarm



Driver alarm support Normal close/open mode, please check driver alarm output mode, and modify Other parameter P17 and P17-1.

Note: when power on controller and driver, if controller shows driver alarm while driver did not alarm, please revise Other parameter P17 and P17-1.

5. Basic parameter setting

A) **NEW18iM-3**

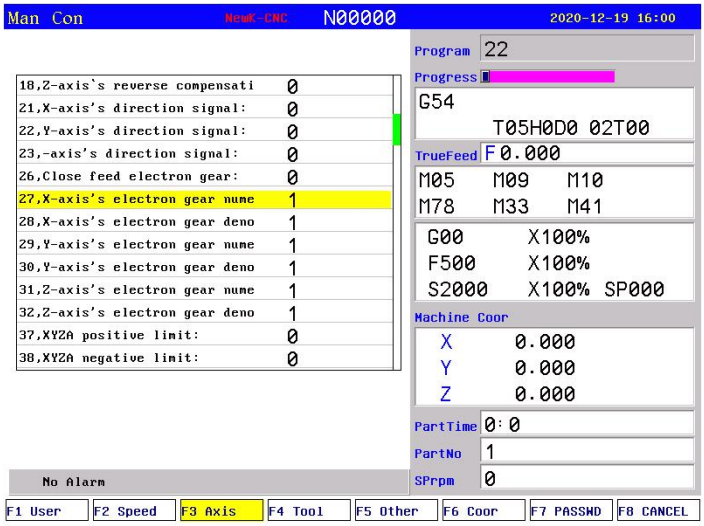
(a) Press 

enter into parameter setting, then press **F3** to go to Axis section

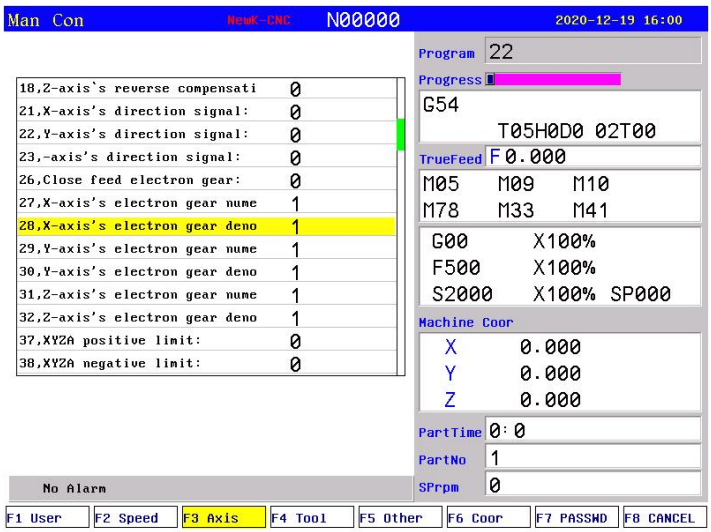
(b) Electronic gear ratio setting(relative to axis movement correction):

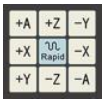
Axis parameter:

P27 X-axis electronic gear numerator = reduction ratio*10;



P28 X-axis electronic gear denominator = ball screw pitch(mm)(axis movement per turn of motor)



After setting, Press **F** on the board to set speed, then press 

to move X, and check if X axis real movement is real coordinate changes through dial gauge. For example, if machine coordinate changes by 10mm, dial gauge value should change by 10mm.

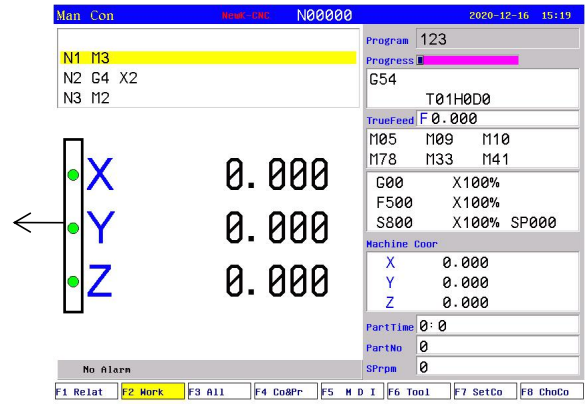
P29-P30 is Y axis electronic gear ratio. After setting, please also use dial gauge to check if Y real movement match with coordinate changes;

P31-P32 is Z axis electronic gear ratio. After setting, please also use dial gauge to check if Z real movement match with coordinate changes;

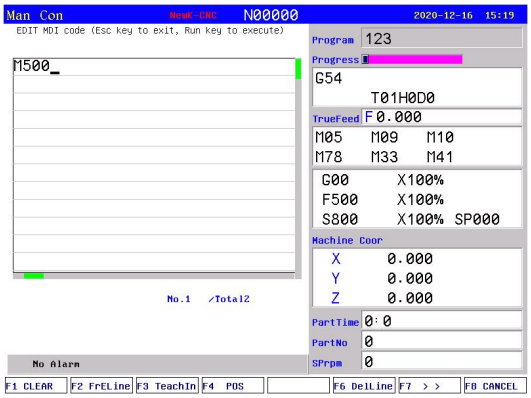
(**c**) Absolute driver feedback checking

If driver works well, and when controller power on, it will read position feedback from driver through Modbus.

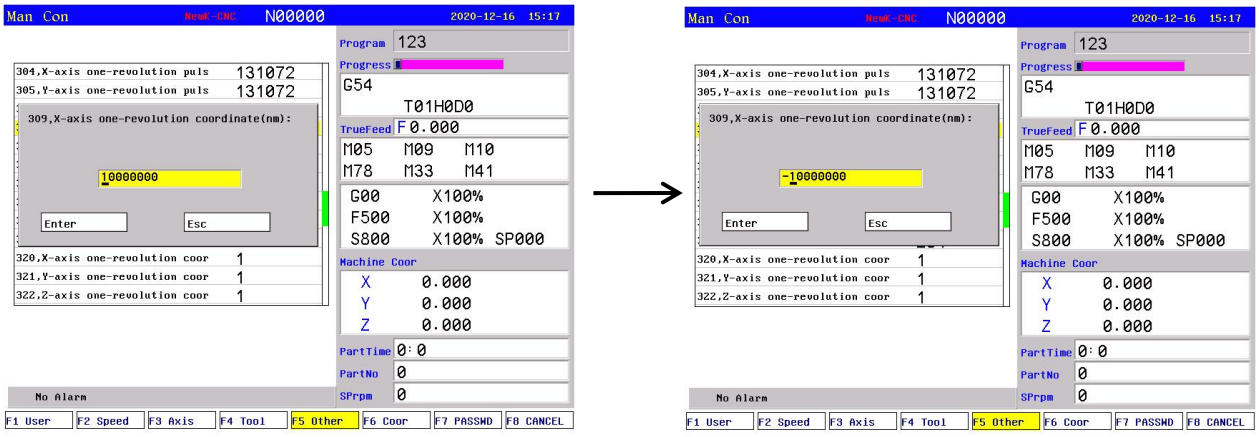
When communicate successfully, circles before coordinate will become green



1) Press **F5 MDI** to enter into MDI mode, then press **Start** to run M500 to read position ;



2) Press  to move X by 10, then run M500 in MDI, to check if X coordinate change after run M501(change within 0.010 is acceptable). After M500, if X axis coordinate changes within 0.010, then go to step 4); if X coordinate changes over than 0.010, move X axis by 10 again, and run M500 again to check if X axis coordinate remains as before M500, if not, go to revise Other parameter P309 sign.



3) After adjust P309, run M500 in MDI again, now X coordinate will change; Move X axis by 10, and run M500, then X coordinate should remain the same as value before run M500.

4) Move Y axis by 10, run M500 in MDI to check if Y axis coordinate changes. If changes like above steps, please modify Other parameter P310; the steps are similar to Step 1-3.

5) finish all axis feedback checking, record current machine coordinate, then restart driver with

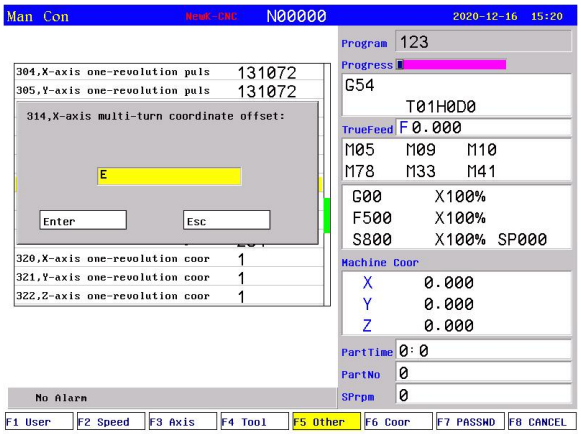
controller to check if coordinate changes before and after power on.

(**d**) Home process

1) Move **XYZ** to the position which will be home point of machine coordinate;

2) Set current position as home position;

Input **E** in Other parameter P314-P318, and press Enter, current XYZ machine coordinate will be 0;



3) **Speed parameter**

P38 X home rampit speed: X axis go home speed in positive direction;

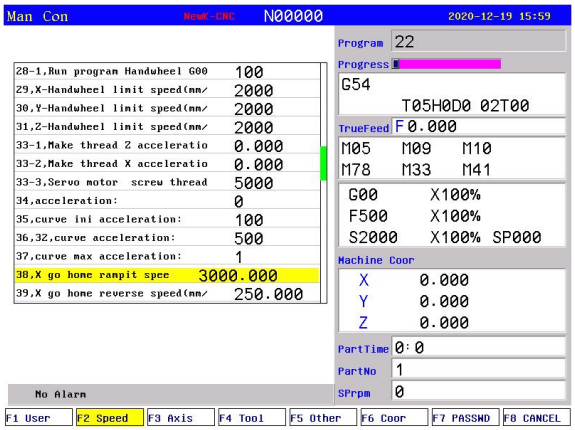
P39 X home reverse speed: X axis go home speed in negative direction;

P40 Y home rampit speed: Y axis go home speed in positive direction;

P41 Y home reverse speed: Y axis go home speed in negative direction;

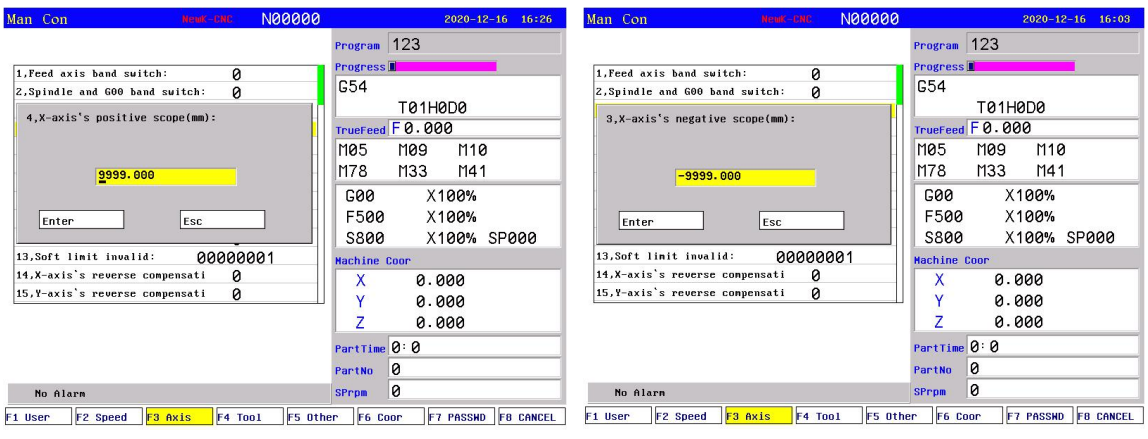
P42 Z home rampit speed: Z axis go home speed in positive direction;

P43 Z home reverse speed: Z axis go home speed in negative direction;



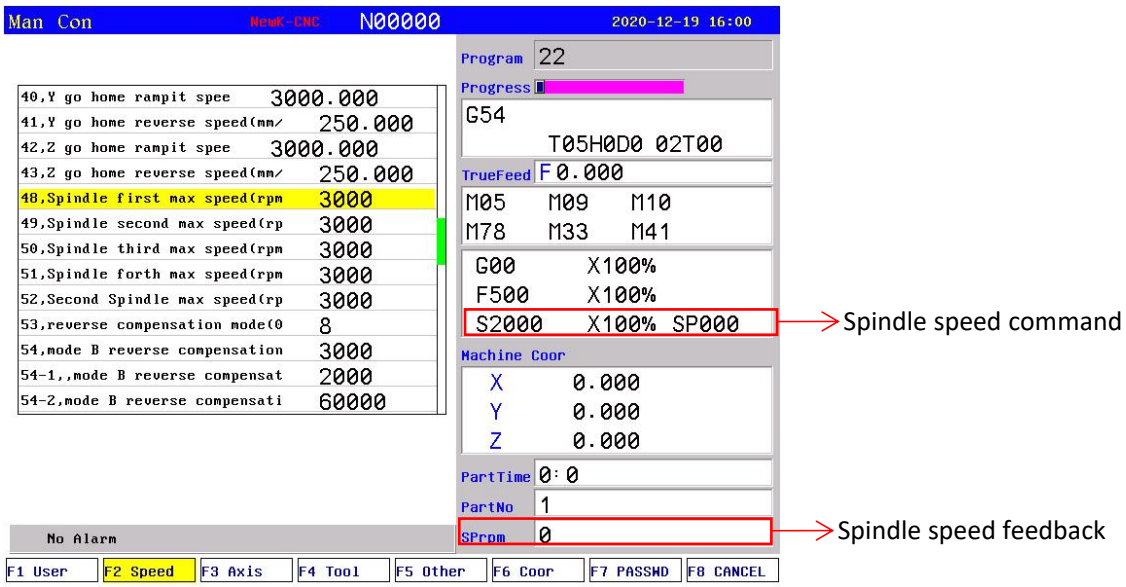
(**e**) Soft limit setting

Input max coordinate value in both directions into Axis parameter P3-P8;



(f) Spindle control

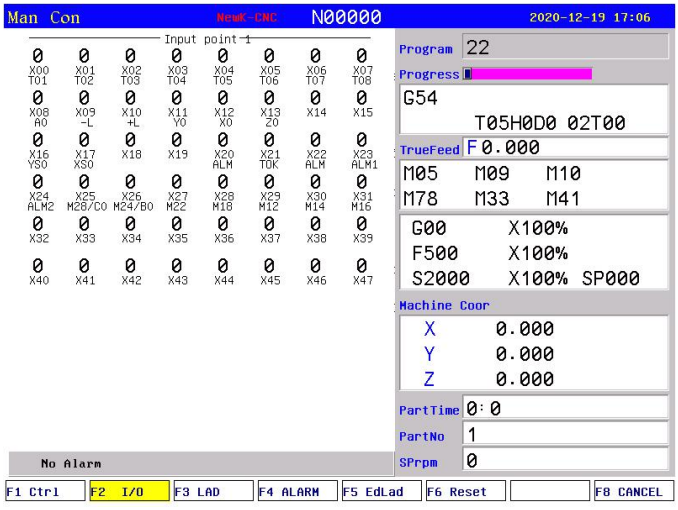
Item	Signal	Command	Relative Parameter	PLC address	Default I/O	Sample
1st Spindle	CW	M03	/	M53	Y14	M03 S1000
	CCW	M04	/	M54	Y13	
	Stop	M05	/	M55	Y12	
	Speed	S+speed	Speed parameter P48	/	AV1	
2nd Spindle	CW	M203	/	M213	Y28	M203 SS1000
	CCW	M204	/	M212	Y29	
	Stop	M205	/	/	/	
	Speed	SS+speed	Speed parameter P52	/	AV2	

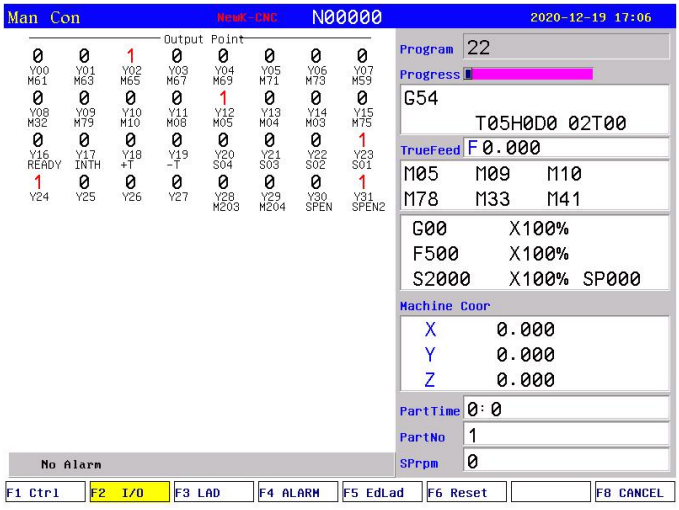


(e) Input and Output

Press 

twice to enter into IO interface:





1) Input point

Signal	Command	Pin	Function	Relative parameter
X00	T01	/	Magazine tool overload alarm	/
X01	T02	/	Spindle chuck loose detection	/
X02	T03	/	Lubricant oil level detection	/
X03	T04	/	Coolant shortage alarm	/
X04	T05	/	Spindle chuck tighten detection	/
X05	T06	/	Magazine forward detection	/
X06	T07	/	Magazine backward detection	/
X07	T08	/	Tool count signal	/
X08	A0	/	A axis home signal	Axis parameter P48
X09	-L	/	Machine negative hard limit switch	Axis parameter P38
X10	+L	/	Machine positive hard limit switch	Axis parameter P37
X11	Y0	/	User-define input/Y axis home signal	Axis parameter P48
X12	X0	/	X axis home signal	Axis parameter P48
X13	Z0	/	Z axis home signal	Axis parameter P48
X14	/	/	User-define input	/
X15	/	/	User-define input	/
X16	YS0	/	Ys axis home signal	/
X17	XS0	/	Xs axis home signal	/
X18	/	/	User-define input	/
X19	/	/	User-define input	/
X20	ALM	/	XYZA axis servo alarm	Other parameter P17
X21	TOK	/	Turret lock ready	/
X22	ALM	/	BCXsYs axis servo alarm	Other parameter P17-1
X23	ALM1	/	Spindle driver alarm	Other parameter P18
X24	ALM2	/	Machine alarm	Other parameter P19
X25	M28/C0	/	User-define input/C axis home signal	/
X26	M24/B0	/	User-define input/B axis home signal	/
X27	M22	/	Spindle orientation detection	/
X28	M18	/	User-define input	/
X29	M12	/	Door switch detection	/
X30	M14	/	Compress air alarm	/
X31	M16	/	Spindle remote loosen chuck	/
X32	/	/	User-define input	/
X33	/	/	User-define input	/
X34	/	/	User-define input	/
X35	/	/	User-define input	/
X36	/	/	User-define input	/
X37	/	/	User-define input	/
X38	/	/	User-define input	/
X39	/	/	User-define input	/
X40	/	/	User-define input	/
X41	/	/	User-define input	/

X42	/	/	User-define input	/
X43	/	/	User-define input	/
X44	/	/	User-define input	/
X45	/	/	User-define input	/
X46	/	/	User-define input/M01 conditional pause	/
X47	/	/	User-define input/Spindle fan alarm	/

Attention: Common terminal of all input points is 0V, and input points are 0V effective;

Note: if controller prompt driver alarm while servo driver does not alarm, please set Other parameter P17.

2) Output point

Signal	Command	Pin	Function	Relative parameter
Y00	M61	/	Spindle orientation	/
Y01	M63	/	Magazine rotate CW	/
Y02	M65	/	Stop status light output	/
Y03	M67	/	Alarm status light output	/
Y04	M69	/	Run status light output	/
Y05	M71	/	Magazine rotate CCW	/
Y06	M73	/	Magazine forward	/
Y07	M59	/	Huff	/
Y08	M32	/	Lubricant	Other parameter P4-P6
Y09	M79	/	User-define Output	/
Y10	M10	/	Spindle chuck	Other parameter P13, P20,P22,P24
Y11	M08	/	Coolant	Other parameter P14
Y12	M05	/	Spindle stop	Axis parameter P13-P14
Y13	M04	/	Spindle CCW	/
Y14	M03	/	Spindle CW	/
Y15	M75	/	Spindle control mode switch	/
Y16	READY	/	Servo enable(default close)	/
Y17	INTH	/	Servo alarm reset	/
Y18	+T	/	User-define Output	/
Y19	-T	/	User-define Output	/
Y20	S04(M44)	/	Spindle 4th gear	Speed parameter P51
Y21	S03(M43)	/	Spindle 3rd gear	Speed parameter P50
Y22	S02(M42)	/	Spindle 2nd gear	Speed parameter P49
Y23	S01(M41)	/	Spindle 1st gear	Speed parameter P48
Y24	/	/	User-define Output	/
Y25	/	/	User-define Output	/
Y26	/	/	User-define Output	/
Y27	/	/	User-define Output	/
Y28	M203	/	2nd spindle CW	/
Y29	M204	/	2nd spindle CCW	/
Y30	SPEN	/	1st spindle Enable	/
Y31	SPEN2	/	2nd spindle Enable	/

Attention: Common terminal of all output points is 24V, and output points are 0V effective;

Sample: when run M61, Y00 will be on; when run M60, Y00 will be off.

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