Custom macro program instruction M881-M889

1. The command M881-M889 corresponds to the macro program name ProgramUser1-ProgramUser9.

2. ProgramUser1-ProgramUser9 must be edited on the computer, copied to the U disk, and then imported into the system.

3. ProgramUser1 - ProgramUser9, ProgramTool, ProgramM6 instructions.

1) OUT

Output instruction.

Format: OUT+(-/A/P/R)Y(M)**+(-/A/P/R)Y(M)**+(-/A/P/R)Y(M)** +(-/A/P/R)Y(M)**

Description: The "+" table output is valid "-" table output is invalid.

"A" table output is reversed (valid becomes invalid, invalid becomes valid);

After the "P" table tool holder is judged by the nearest position, if it is forward rotation, the output is valid, and if it is reversed, the output is invalid;

After the "R" table tool holder is judged by the nearest position, the output is invalid if it is forward rotation, and the output is valid if it is reverse rotation.

For example: OUT+Y5-Y7+Y9+Y11-Y15

Indicates that the Y5, Y9, and Y11 outputs are valid; the Y7, Y15 outputs are invalid.

For example: OUT+M12-M13+Y14+Y8-Y16

Indicates that the M12, Y14, Y8 outputs are valid; the M13, Y16 outputs are invalid.

2) WHEN**OUT

Output command.

Used to judge the tool number and output the signal. Format:

WHEN**OUT+(-/A/P/R)Y(M)**+(-/A/P/R)Y(M)**+(-/A/P/R)Y(M)* *+(-/A/P/R)Y(M)**

Description: "**" in WHEN**OUT means the tool number

The "+" table output is valid;

"-" table output is invalid;

"A" table output is reversed (valid becomes invalid, invalid becomes valid);

After the "P" table tool holder is judged by the nearest position, if it is forward rotation, the output is valid, and if it is reversed, the output is invalid;

After the "R" table tool holder is judged by the nearest position, the output is invalid if it is forward rotation, and the output is valid if it is reverse rotation.

For example: WHEN7OUT+Y5-Y7+Y9+Y11-Y15

Indicates that the Y5, Y9, Y11 output is valid when changing the No. 7 knife; the Y7, Y15 output is invalid.

For example: WHEN8OUT+M12-M13+Y14+Y8-Y16

Indicates that the M12, Y14, Y8 outputs are valid when changing the No. 8 knife; the M13, Y16 outputs are invalid.

3) WAT, MAXWAT, HOLDWAT, MODWAT

Wait for instruction.

Wait for X, Y, M valid or invalid instructions

Format: WAT+(-)X(Y/M)**+(-)X**+(-)X**+(-)X**+(-)X**+(-)X**

Description: The "+" table is waiting to be valid;

"-" table waits for invalidation;

Y or M must have at most one or none, and X can have any number.

3.1)

The longest waiting time for waiting for the instruction WAT: MAXWAT

Used to limit the maximum wait time for waiting for the instruction WAT.

Format: MAXWAT****

Description: The number range after the instruction is 0-99999, the unit is ms (milliseconds). After the time is exceeded, the system will alarm and exit the program.

When the value is 0 or the MAXWAT instruction list alone invalidates the function, there is no need to limit the wait for the instruction WAT. The longest waiting time.

3.2)

Waiting for the condition of the instruction WAT to meet the hold time: HOLDWAT

Used to specify the hold time when the wait instruction WAT condition is met.

Format: HOLDWAT****

Description: The number range after the instruction is 0-99999, the unit is ms (milliseconds).

When the value is 0 or the separate HOLDWAT instruction table invalidates the function, you do not need to specify the wait instruction WAT. The condition satisfies the hold time.

3.3)

Waiting for the maximum wait time mode of the instruction WAT: MODWAT This instruction is used in conjunction with the instruction MAXWAT

Formula: MODWAT1/MODWAT2/MODWAT3/MODWAT4; Default: MODWAT1. MODWAT1 waits for WAT command

After the system is exceeded, the system will log out of the alarm; MODWAT2 waits for the command WAT time to exceed the system will report

The police continue to run the program; MODWAT3 waits for the command WAT time to expire after the system does not exit the dialog box alarm;

After the MODWAT4 waits for the WAT time to expire, the system does not alarm the dialog box to continue the program.

For example: if the X0 signal is not received in 5 seconds, the alarm number 1 is reported.

MODWAT4 MAXWAT5000 WAT+X0 IF (-X0) THEN OUT+M81 ERREXIT ENDIF

4) PAUS

Delay instruction.

An instruction used to delay the program midway.

Format: PAUS****

Description: The number range after the instruction is 0-99999, the unit is ms (milliseconds).

5) Suspend instruction: M36

It is used for single-stage tool change, that is, the tool change program will pause until it runs, and then continue to run after it is valid.

Format: M36

6) Assignment instruction: =

Used to assign values to variables

Format: =

For example: #251=890.34

#450=#123

Can have mathematical expressions, for example: #440=#234+#670

7) DISP

Refresh tool status display command.

Used to refresh the contents of the "Tools" column of the main interface of the system.

Format: DISP

8) SAVETOOL

Save tool number command.

Used to save the tool number when the tool number is not determined by the external switch. Usually used for the entire program

The last line.

Format: SAVETOOL

9) CASE

Wait for a tool to change the tool in place.

Wait for a tool to change the tool in-position command, and judge the condition indicated by the command. When the condition is satisfied, it is considered to be changed.

The knife is in place and the program is executed again.

Format: CASET**+(-)X**+(-)X**+(-)X**+(-)X**+(-)X**+(-)X**+(-)X**

Description: "T**" table tool number

The "+" table input is valid;

"-" table input is invalid;

"X" input point.

Example: CASET1-X16+X17-X18-X19+X20

Wait for the No. 1 knife to rotate into position. When the No. 1 is in place, the X16, X18, X19 input signals are invalid, X17, X20

The input signal is valid.

10) MESSAGEBOX

Information prompt dialog.

Format: MESSAGEBOX (parameter 1); parameter 1 is the information string.

Or abbreviated as: MSG (parameter 1); parameter 1 is the information string.

11) STATUSINFO

Current tool change status information display.

Format: STATUSINFO (parameter 1); parameter 1 is the information string.

Or abbreviated as: STAF (parameter 1); parameter 1 is an information string.

Note:

When only STATUSINFO or STAF or STATUSINFO() or STAF() is programmed, it means to turn off when the previous information prompt.

12) CHOOSET

Cutter selection knife.

Format: CHOOSET (parameter 1, parameter 2); / / parameter 1 is 1 table bucket type tool magazine selection, parameter 2 is the tool number.

The tool number on the current spindle of the TS0 table, the tool number passed in the TAIM table command.

13) IF THEN ENDIF

Conditional statement: Execute when the condition is met, otherwise skip.

Format:

IF (auxiliary relay or input point or output point or macro variable) THEN

ENDIF

The +Mxx table auxiliary relay is valid when the condition is met.

-Mxx Table Auxiliary relay is invalid when the condition is met.

The condition is met when the +Xxx table entry point is valid.

The condition is met when the -Xxx table entry point is invalid.

The condition is met when the +Yxx table output point is valid.

-Yxx table output point is invalid when the condition is met.

+#xx The condition is satisfied when the table macro variable is 1 (non-zero).

-#xx The condition is satisfied when the table macro variable is 0.

For example: When the M13 auxiliary relay is active, a dialog box pops up and exits.

IF (+M13) THEN

MESSAGEBOX (Fault: There is a knife or air pressure alarm in the current tool holder, it is impossible to return to the knife!)

RETURN; / / return

ENDIF

For example: When the X13 input point is valid, a dialog box pops up and exits.

IF (+X13) THEN

MESSAGEBOX (Fault: There is a knife or air pressure alarm in the current tool holder, it is impossible to return to the knife!)

RETURN; / / return

ENDIF

For example: When the Y13 output point is valid, a dialog box pops up and exits.

IF (+Y13) THEN

MESSAGEBOX (Fault: There is a knife or air pressure alarm in the current tool holder, it is impossible to return to the knife!)

RETURN; / / return

ENDIF

For example: When the #313 macro variable is 1 (non-zero), a dialog pops up and exits.

IF (+#313) THEN

MESSAGEBOX (Fault: There is a knife or air pressure alarm in the current tool holder, it is impossible to return to the knife!)

RETURN; / / return

ENDIF

Conditional statements are added based on the above functions:

1>, IF [logical expression] THEN

......

......

ENDIF

2>, IF [logical expression] THEN #345=235 (assignment statement)

3>, IF [logical expression] THEN OUT+Yxx-Yxx (direct output port statement)

4>, IF [logical expression] GOTO xxx (jump statement)

Note: The [logical expression] format is the same as the user macro program format, and can have logic judgments such as GT/NE/LT.

Mathematical expressions.

14) MOVE

Moving the axis.

Format: MOVE (parameter G, parameter F, parameter X, parameter Y, parameter Z, parameter A, parameter B, parameter W);

The first parameter is G90 or G91, indicating whether it is relative or absolute.

F specifies the speed, XYZAB specifies the machine coordinates.

W specifies to stop running when an input signal meets the condition, for example: W+5 table input point X5 is valid

Stop running.

For example: MOVE (G90, F8000, X-100); / / X axis moved to machine coordinates X-100 mm.

MOVE (G91, F8000, Z-100); / / Z axis movement - 100 mm.

MOVE (G91, F8000, Y-300, W-8); / / Y axis moves - 300 mm, but stops when input point X8 is invalid run.

The parameters F and XYZAB can be specified with the macro variable #.

For example: MOVE (G91, F#231, Y#240, W+2); // The Y axis moves #240 mm at speed #231, but when input stop operation when point X2 is valid.

Note: If the axis is a rotating axis, it will run according to the rules of the rotating axis, such as running in the near direction and coordinate calculation. Wait.

15) SETWK

Set the value of the current workpiece coordinate system and save it.

Format: SETWK (parameter X, parameter Y, parameter Z, parameter A, parameter B);

For example: SETWK (X23.56, Z567.89); / / set the current workpiece coordinate system X coordinate value is 23.56 millimeters

The meter has a Z coordinate value of 567.89 mm.

The parameter XYZAB can be specified with the macro variable #.

For example: SETWK (X#238, Z#237); / / set the current workpiece coordinate system X coordinate value is #238 mm, Z

The coordinate value is #237 mm.

16) SETWF

Set the offset value of the current workpiece coordinate system and save it.

Format: SETWF (parameter X, parameter Y, parameter Z, parameter A, parameter B);

For example: SETWF (X23.56, Z567.89); / / set the current workpiece coordinate system X offset is 23.56 millimeters

The meter, Z offset is 567.89 mm.

The parameter XYZAB can be specified with the macro variable #.

For example: SETWF (X#238, Z#237); / / set the X offset in the current workpiece coordinate system is #238 mm, Z

The offset is #237 mm.

17) SETMH

Set the value of the current machine coordinate system and save it.

Format: SETMH (parameter X, parameter Y, parameter Z, parameter A, parameter B);

For example: SETMH (X23.56, Z567.89); / / set the current machine coordinate system X coordinate value is 23.56 millimeters

The meter has a Z coordinate value of 567.89 mm.

The parameter XYZAB can be specified with the macro variable #.

For example: SETMH (X#238, Z#237); / / set the current machine coordinate system X coordinate value is #238 mm, Z

The coordinate value is #237 mm.

18) COUN

Number of knife commands.

Waiting for a command to change the tool in position by a multi-tool signal, and judging the pointed tool positioning letter condition, when the condition is met I think that the tool change is in place and the program is executed again.

Format: COUNT**+(-)X**+(-)X**

Description: "T**" table tool number, tool number passed in the TT table command.

The first input point X index knife signal, the '+' table rises along the number of knives, the '-' table falls along the number of knives.

The second input point X specifies the bit signal, the '+' table is effectively positioned, and the '-' table is invalid.

The two input points X can be the same point. There can be no second input point positioning signal.

According to the setting of the parameter "unidirectional/bidirectional tool selection", the tool number is increased or decreased. If it is one-way,

The tool number is increased, if

In both directions, the tool number is determined to increase or decrease according to the principle of the nearest knife selection.

The parameter "whether the tool number is determined by the input point" is changed to not be determined by the input point.

For example: COUNTT+X11-X11 selects the tool number passed in the T command, the number of the knife signal is X11, the number of rising edges

Knife, positioning signal is X11, invalid table positioning.

COUNTT+X10 selects the tool number passed in the T command. The multi-knife signal is X10, the rising edge is a number of knives, not detected.

Positioning signal.

COUNT6+X10-X10 selects the No. 6 knife, the number of the knife signal is X10, the rising edge is a number of knives, and the positioning signal is X10.

Invalid table location.

COUNT7-X6+X8 selects the No. 7 knife, the number of the knife signal is X6, the falling edge number is the knife, the positioning signal is X8, there is

Effect table positioning.

Note: This number of tool commands can only be used for magazines that rotate at low speeds.

19) CUNOUT

Several-knife output command.

outputs the tool magazine rotation command and waits for the tool change to be completed automatically.

The magazine set in the parameter is inverting the output point.

Format: CUNOUT+(-/A/P/R)Y**+(-/A/P/R)Y**+(-/A/P/R)Y**+(-/A/P/R)Y**

Description: The "+" table output is valid;

"-" table output is invalid;

"A" table output is reversed (valid becomes invalid, invalid becomes valid);

After the "P" table tool holder is judged by the nearest position, if it is forward rotation, the output is valid, and if it is reversed, the output is invalid;

After the "R" table tool holder is judged by the nearest position, the output is invalid if it is forward rotation, and the output is valid if it is reverse rotation.

For example: CUNOUT+Y9PY5RY7+Y11-Y15

The machining center parameters need to be set as follows:

P32, knife selection mode / multi-tool signal (0 bit: 0 table unidirectional / 1 table bidirectional knife selection; 2 bits and 4 bits for multi-knife filter

Setting)

P25, tool magazine number knife signal [rising edge "1000 + number", falling edge "2000 + number"]

P26, magazine positioning signal [1000+ number]

P27, tool magazine forward output point [1000+ number]

P28, magazine reverse output point [1000+ number]

Note: This number of tool commands can be used for high speed rotating magazines.

20) GOTO

Jump statement.

Format: GOTO xx

E.g:

OUT-Y8

N12; tag line should occupy a separate line

OUT+Y4-Y6

PAUS5000

WAT+X23

GOTO 12; table jumps to the N12 mark line

21) SAVEMACR

Save macro variables to memory.

Format: SAVEMACR

22) ERREXIT

Error exit

Format: ERREXIT

23) RETURN

Successful exit

Format: RETURN

24) Explanation of special variables:

CURTS: Current tool set number.

CURTH: Current tool length compensation number.

TAIM: The value passed in by the T command.

TS(xx): The tool number in the tool holder xx.

TS (0) or TS0: Tool number on the spindle.

25) M00, M0

Suspend instruction.

It is used for the normal control program, that is, the control program will pause until it is running, and continue to run after pressing the run key.

Format: M00 or M0

26) SETTH

Set the current tool length compensation value and save it.

Format: SETTH (parameter X, parameter Y, parameter Z, parameter A, parameter B);

For example: SETTH (X23.56, Z567.89); / / set the current tool length compensation X coordinate value is 23.56

The millimeter has a Z coordinate value of 567.89 mm.

The parameter XYZAB can be specified with the macro variable #.

For example: SETTH (X#238, Z#237); / / set the current workpiece coordinate system X coordinate value is #238 mm, Z

The coordinate value is #237 mm.

27) SETTD

Set the current tool radius compensation value and save it.

Format: SETTD (parameter);

In development……

28) FILEON, FILECE, FILEWD, FILEWC

Instructions for file operations:

1>, create an open file command:

FILEON (parameter) or FILEON [parameter]

E.g:

FILEON(AABBCC) or FILEON[AABBCC]

Indicates that opening a file AABBCC is created

2>, close the file command:

The FILECE table closes the currently open file. If there is no such command, the program will automatically close when it finishes running.

The file opened before.

3>, an instruction to write a string of characters to the open file:

FILEWD (parameter) or FILEWD [parameter]

E.g:

FILEWD(G54G0X0Z0) or FILEWD[G54G0X0Z0]

Indicates that a string of characters G54G0X0Z0 is written in the open file.

4>, write the absolute coordinate command of the current feed axis to the open file:

FILEWC

29) COM

Control instructions for serial communication.

1) Configure the serial port parity check mode.

Format:

COMP1 table odd test.

COMP2 table even test.

COMP3 table has no parity.

2) Clear the serial data receive buffer.

Format: The COMC table clears the serial receive buffer.

3) Send a character from the serial port.

Format: COMS (parameter); The parameter is a character or macro variable the value of this macro variable is the ASCII corresponding to the character code).

For example: COMS(A) Sends the character A out, COMS(#560) sends the ASCII character corresponding to the value of macro variable #560.

4) Receive a character from the serial port.

Format: COMR (parameter) The parameter is a macro variable to hold the received character.

The value is the ASCII code corresponding to the character.

For example: COMS(#561) Store the ASCII code value corresponding to the received character into macro variable #561.