

Hardware Operations

■ Standard Version

◆ Instructions & Operations:

● Keys Instructions of Standard Control Pad:

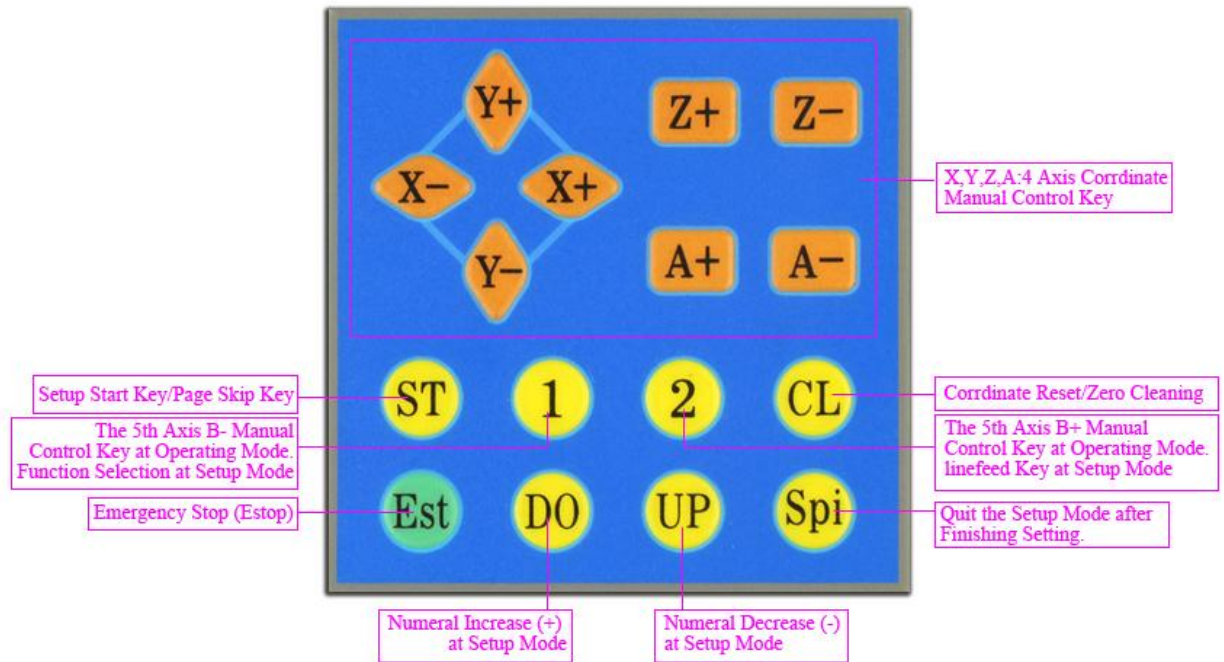


Figure 1: Keys Instructions of Standard Control Pad

● Interface & Operating Instructions of Standard Display Panel:

- As long as the control pad and display panel have been connected to the driver well, power on the driver, the main interface on display panel will be shown as “Figure 2”.
- The display range of the coordinate is -9999.999 ~ 9999.999.
- Coordinate values display can be switched to each other from computer to control pad or from control pad to computer. When coordinate values display of computer switch to that of the control pad, two seconds time will last.

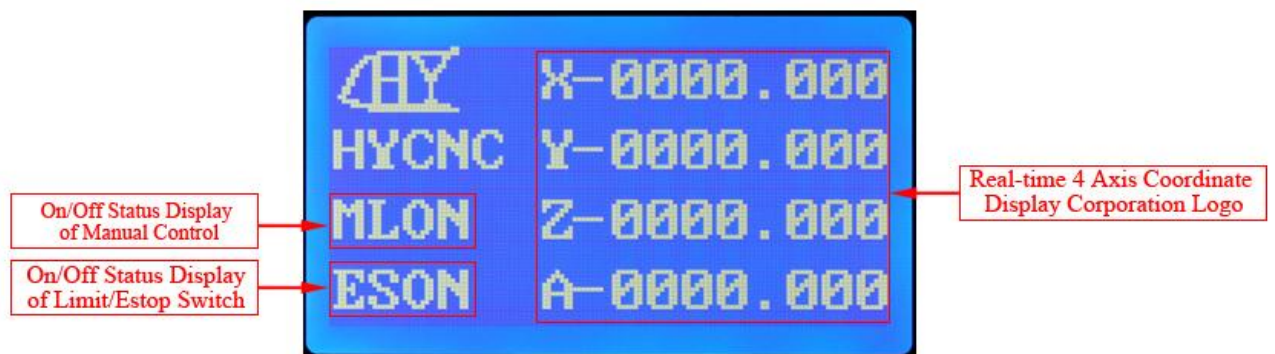


Figure 2: Main Interface Display

- After main interface displays as above, please press the “ST” button on control pad to start to set the functions you need.
- As “Figure 3” shows, you can press the “2” key on control pad to switch on/off the cutter-presetting/tool-setting (“Stat”) function.
- Before switching on the cutter-presetting/tool-setting, please do check whether the wirings of the cutter and limit switch are correct or not first.
- What’s more, before switching on the cutter-presetting/tool-setting, to insure the precision of cutter-presetting/tool-setting, please also do set the suitable “height and diameter” of the cutter/tool at required Axis for the machine by pressing the “1” linefeed key on the control pad.
- You can press the “DO” or “UP” button to increase or decrease the values to meet your needs.
- If all the settings in “Figure 3” are finished, as long as pressing the “2” key, the driver will automatically set the cutter with no need of the computer’s assistance, though the process will take a few seconds.
- If you want to quit the cutter-presetting or tool-setting, please press the “Spi” key.
- All the settings can be real-time saved automatically until the next updating.



Figure 3: Automatic Cutter-presetting/Tool-Setting

- After finishing “Cutter-presetting/Tool-Setting”, please press the “ST” key on control pad again to skip to the “Main Function Setting” in “Figure 4”.
- Press the “2” key on control pad to set On/Off of the limit switch (“LimT”), then press the “1” button for linefeed to set Backlight (“LigT”) time.
- Press “DO” and “UP” to increase or decrease the Backlight time (0~99 seconds), then press “1” button again for linefeed to set On/Off of the spindle (“SpiE”).
- Press the “2” key on control pad to set On/Off of the spindle (“SpiE”), then press the “1” key for linefeed to set On/Off of the Manual Control (“MunL”).
- Press the “2” key on control pad to set On/Off of the Manual Control (“MunL”).
- All the settings can be real-time saved automatically until the next updating.

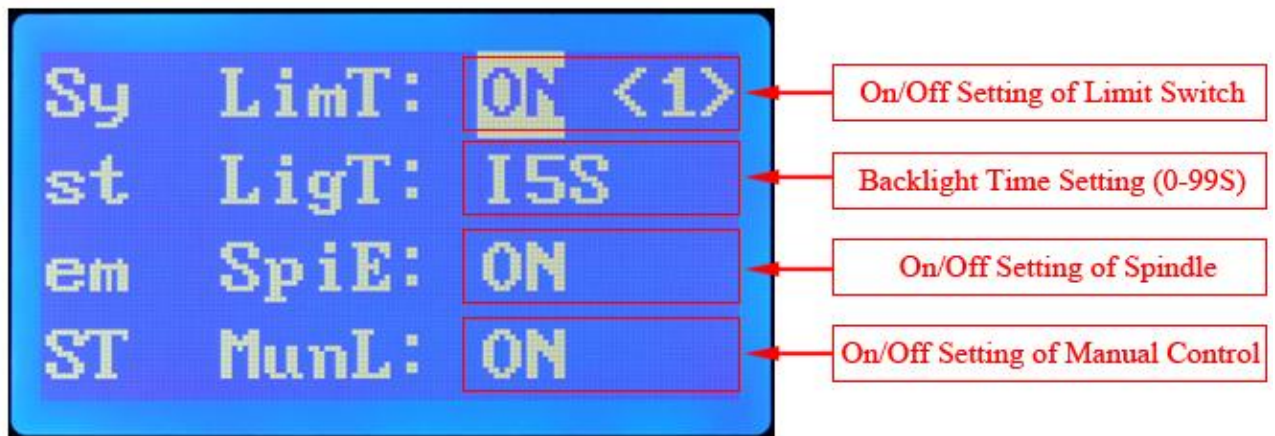


Figure 4: Main Functions Setting

- After finishing “Main Function Setting”, please press the “ST” key on control pad again to skip to the “X Axis Running Parameters Setting” in “Figure 5”.
- Please press the “1” key for linefeed to respectively set the “Microstep Subdivision (SubN)”, “Step/Pulse (PulE)”, “Stepper Speed (SpeD)” and “Stepper Mode (Mode)” by manual control.
- Then press the “DO” and “UP” to get the needed values.
- When you set the “Stepper Mode” by manual control, please press the “2” key to choose the needed “Stepper Mode”.
- The “Microstep Subdivision” setting on the display panel must be equal to the “Microstep Subdivision” setting on the stepper driver board.
- The values of “Step/Pulse” setting on the display must be equal to that of “Steps per” showing in “Motor Turning and Setup” of Mach3 software.
- The range of the “Microstep Subdivision” is “1~99 Microsteps”
- The range of the “Step/Pulse” is “1~999 Pulses”
- The range of the “Stepper Speed” is “0~99 seconds”.
- “§” on “Stepper Mode Setting” means continuous, as long as it has be set as “§”, when pressing any one of the eight “X+, X-, Y+, Y-, Z+, Z-, A+, A-” keys on the control pad with no release, the motor will run continuously all the time.
- “1” on “Stepper Mode Setting” means continuous, as long as it has be set as “§”, even if pressing any one of the eight “X+, X-, Y+, Y-, Z+, Z-, A+, A-” keys on the control pad with no release, the motor will just run one “0.1mm” step and then stop.

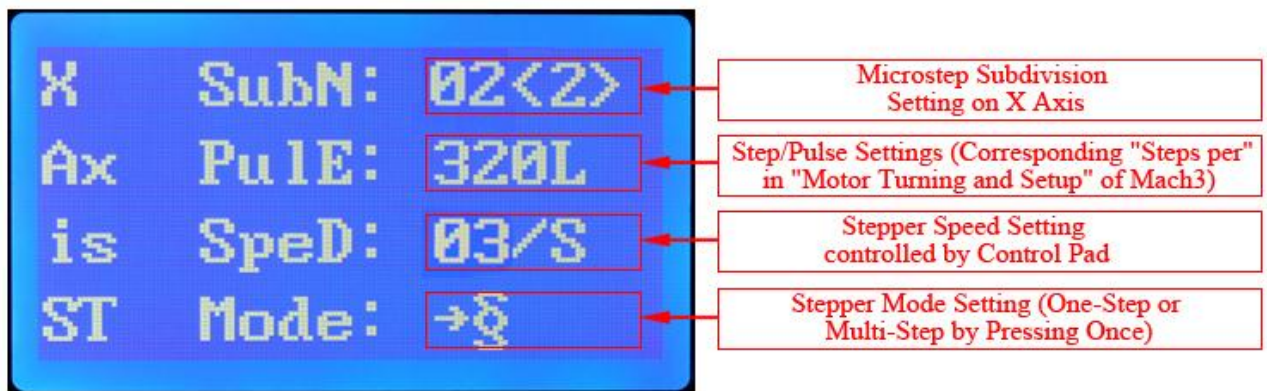


Figure 5: X Axis Running Parameters Setting

- After finishing “X Axis Running Parameters Setting”, please press the “ST” key on control pad again to skip to the “Y Axis Running Parameters Setting” in “Figure 6”.
- Please press the “1” key for linefeed to respectively set the “Microstep Subdivision (SubN)”, “Step/Pulse (PulE)”, “Stepper Speed (SpeD)” and “Stepper Mode (Mode)” by manual control.
- Then press the “DO” and “UP” to get the needed values.
- When you set the “Stepper Mode” by manual control, please press the “2” key to choose the needed “Stepper Mode”.
- The “Microstep Subdivision” setting on the display panel must be equal to the “Microstep Subdivision” setting on the stepper driver board.
- The values of “Step/Pulse” setting on the display must be equal to that of “Steps per” showing in “Motor Turning and Setup” of Mach3 software.
- The range of the “Microstep Subdivision” is “1~99 Microsteps”
- The range of the “Step/Pulse” is “1~999 Pulses”
- The range of the “Stepper Speed” is “0~99 seconds”.
- “§” on “Stepper Mode Setting” means continuous, as long as it has be set as “§”, when pressing any one of the eight “X+, X-, Y+, Y-, Z+, Z-, A+, A-” keys on the control pad with no release, the motor will run continuously all the time.
- “1” on “Stepper Mode Setting” means continuous, as long as it has be set as “§”, even if pressing any one of the eight “X+, X-, Y+, Y-, Z+, Z-, A+, A-” keys on the control pad with no release, the motor will just run one “0.1mm” step and then stop.

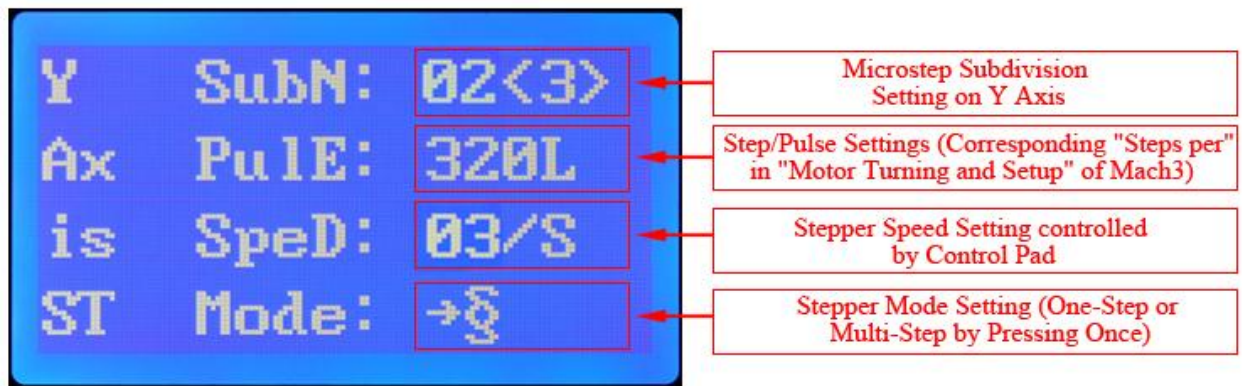


Figure 6: Y Axis Running Parameters Setting

- After finishing “Y Axis Running Parameters Setting”, please press the “ST” key on control pad again to skip to the “Z Axis Running Parameters Setting” in “Figure 7”.
- Please press the “1” key for linefeed to respectively set the “Microstep Subdivision (SubN)”, “Step/Pulse (PulE)”, “Stepper Speed (SpeD)” and “Stepper Mode (Mode)” by manual control.
- Then press the “DO” and “UP” to get the needed values.
- When you set the “Stepper Mode” by manual control, please press the “2” key to choose the needed “Stepper Mode”.
- The “Microstep Subdivision” setting on the display panel must be equal to the “Microstep Subdivision” setting on the stepper driver board.
- The values of “Step/Pulse” setting on the display must be equal to that of “Steps per” showing in “Motor Turning and Setup” of Mach3 software.
- The range of the “Microstep Subdivision” is “1~99 Microsteps”
- The range of the “Step/Pulse” is “1~999 Pulses”
- The range of the “Stepper Speed” is “0~99 seconds”.
- “§” on “Stepper Mode Setting” means continuous, as long as it has be set as “§”, when pressing any one of the eight “X+, X-, Y+, Y-, Z+, Z-, A+, A-” keys on the control pad with no release, the motor will run continuously all the time.
- “1” on “Stepper Mode Setting” means continuous, as long as it has be set as “§”, even if pressing any one of the eight “X+, X-, Y+, Y-, Z+, Z-, A+, A-” keys on the control pad with no release, the motor will just run one “0.1mm” step and then stop.

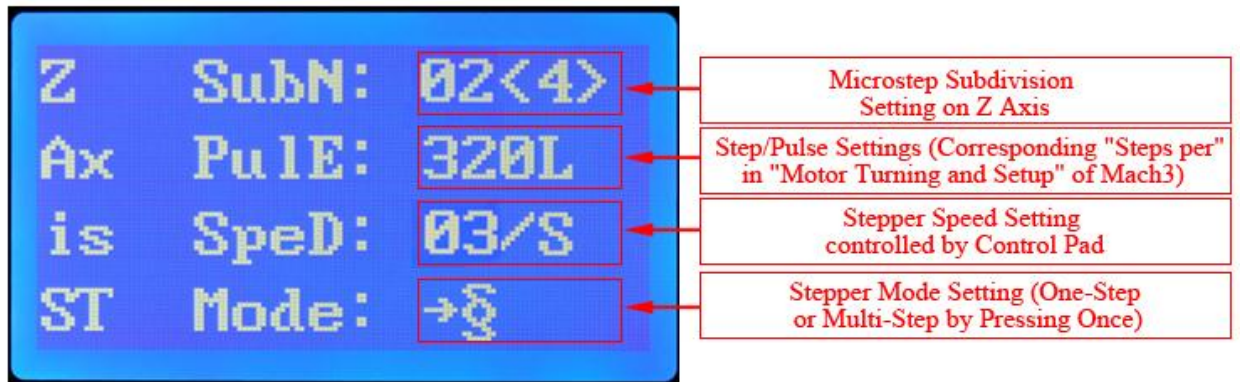


Figure 7: Z Axis Running Parameters Setting

- After finishing “Z Axis Running Parameters Setting”, please press the “ST” key on control pad again to skip to the “A Axis Running Parameters Setting” in “Figure 8”.
- Please press the “1” key for linefeed to respectively set the “Microstep Subdivision (SubN)”, “Step/Pulse (PulE)”, “Stepper Speed (SpeD)” and “Stepper Mode (Mode)” by manual control.
- Then press the “DO” and “UP” to get the needed values.
- When you set the “Stepper Mode” by manual control, please press the “2” key to choose the needed “Stepper Mode”.
- The “Microstep Subdivision” setting on the display panel must be equal to the “Microstep Subdivision” setting on the stepper driver board.
- The values of “Step/Pulse” setting on the display must be equal to that of “Steps per” showing in “Motor Turning and Setup” of Mach3 software.
- The range of the “Microstep Subdivision” is “1~99 Microsteps”
- The range of the “Step/Pulse” is “1~999 Pulses”
- The range of the “Stepper Speed” is “0~99 seconds”.
- “§” on “Stepper Mode Setting” means continuous, as long as it has be set as “§”, when pressing any one of the eight “X+, X-, Y+, Y-, Z+, Z-, A+, A-” keys on the control pad with no release, the motor will run continuously all the time.
- “1” on “Stepper Mode Setting” means continuous, as long as it has be set as “§”, even if pressing any one of the eight “X+, X-, Y+, Y-, Z+, Z-, A+, A-” keys on the control pad with no release, the motor will just run one “0.1mm” step and then stop.
- After finishing all the settings above, please press the “Spi” key to quit the setup mode.
- Lastly, you can press the “CL” key to respectively reset the each axis’s values left by working on the coordinate.

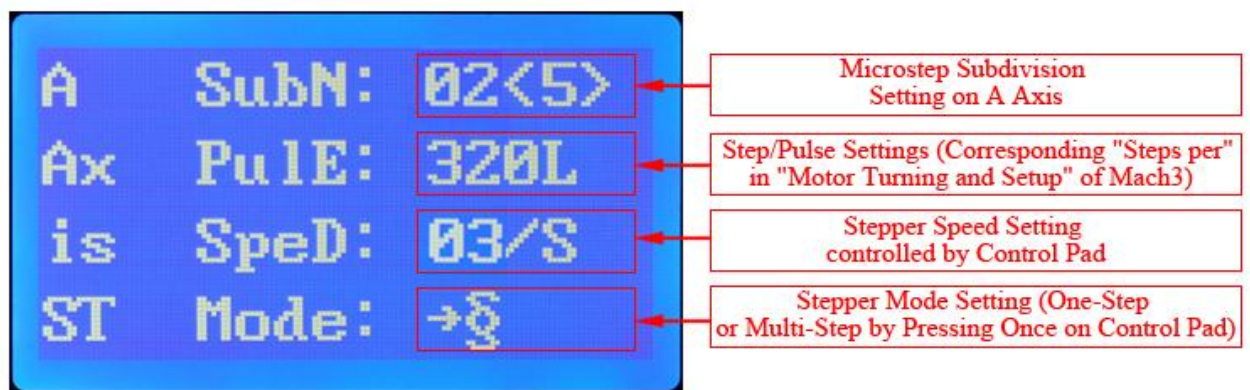


Figure 8: A Axis Running Parameters Setting

■ Professional Version

◆ Instructions & Operations:

● Keys Instructions of Professional Control Pad:

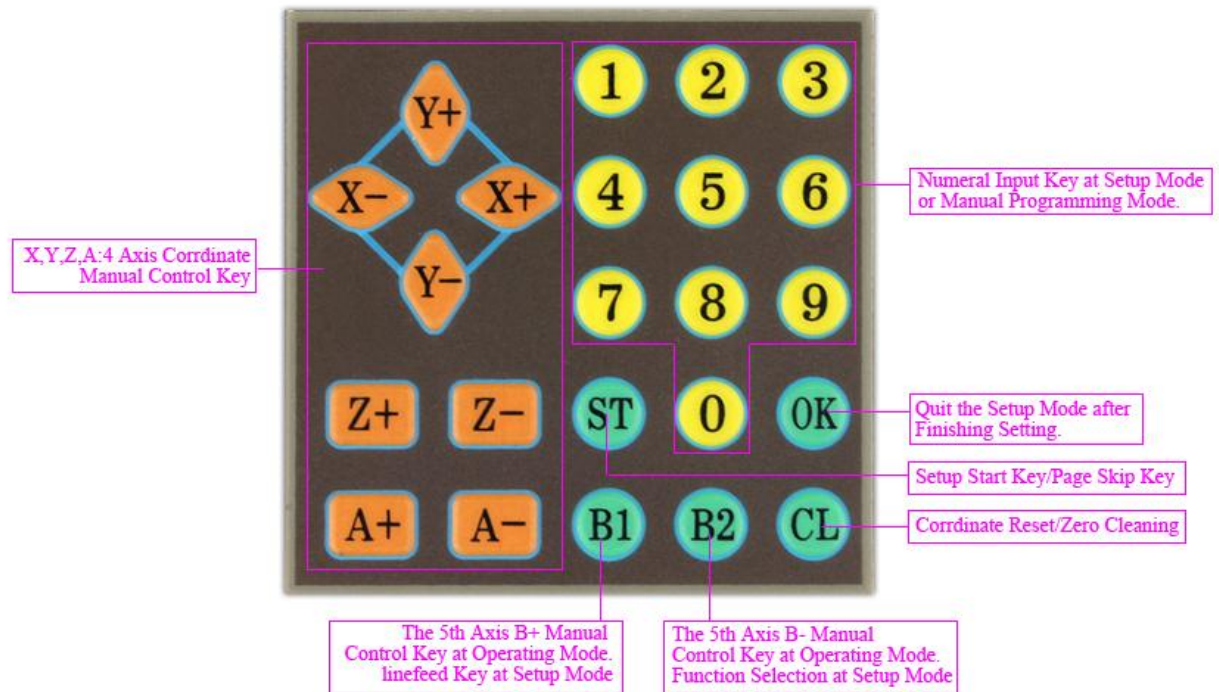


Figure 9: Keys Instructions of Professional Control Pad

● Interface & Operating Instructions of Professional Display Panel:

- As long as the control pad and display panel has been connected to the driver well, power on the driver, the main interface on display panel will be shown as “Figure 2”.
- The Display range of the coordinate is -9999.999 ~ 9999.999
- Coordinate values display can be switched to each other from computer to control pad or from control pad to computer. When coordinate values display of computer switch to that of the control pad, two seconds time will last.

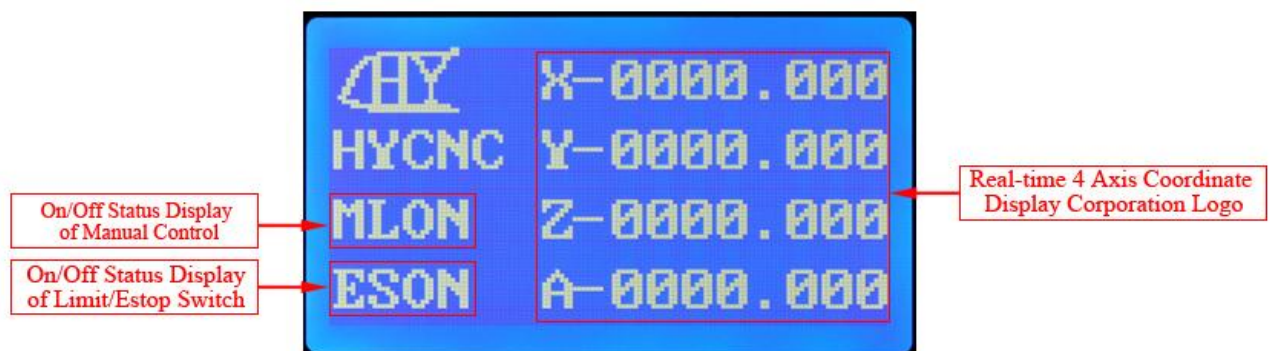


Figure 10: Main Interface Display

- When main interface displays as above, please press the “ST” button on control pad to start to set the functions you need.
- As “Figure 11” shows, you can press the “B2” key on control pad to switch on/off the cutter-presetting/tool-setting (“Stat”) function.
- Before switching on the cutter-presetting/tool-setting, please do check whether the wirings of the cutter and limit switch are correct or not first.
- What’s more, before switching on the cutter-presetting/tool-setting, to insure the precision of cutter-presetting/tool-setting, please also do set the suitable “height and diameter” of the cutter/tool at required Axis for the machine by pressing the “B1” linefeed key on the control pad.
- You can press the “0~9” number keys to input the needed values to meet your needs.
- If all the settings in “Figure 11” are finished, as long as pressing the “B2” key, the driver will automatically set the cutter with no need of the computer’s assistance, though the process will take a few seconds.
- If you want to quit the cutter-presetting or tool-setting, please press the “A-” key.
- All the settings can be real-time saved automatically until the next updating.

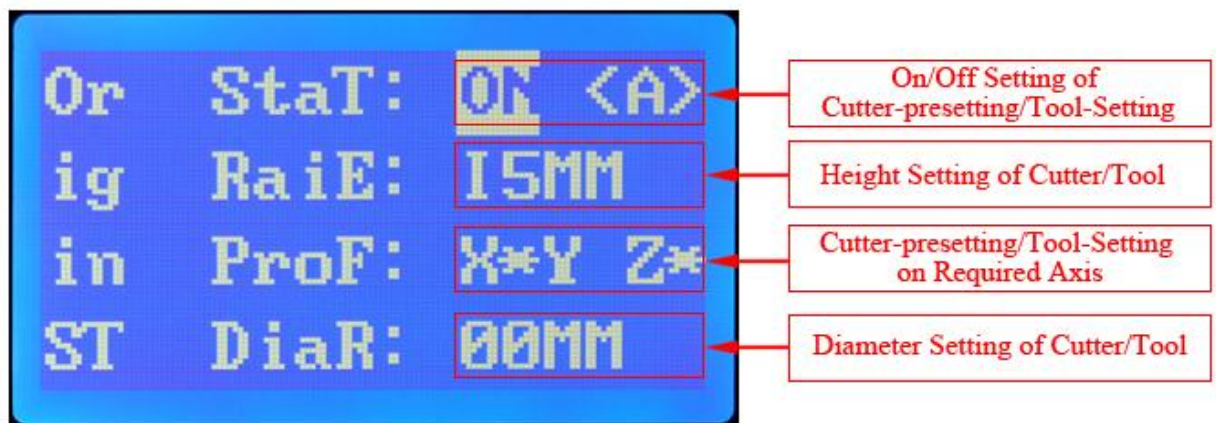


Figure 11: Automatic Cutter-presetting/Tool-Setting

- After finishing “Cutter-presetting/Tool-Setting”, please press the “ST” key on control pad again to skip to the “Main Function Setting” in “Figure 12”.
- Press the “B2” key on control pad to set On/Off of the limit switch (“LimT”), then press the “1” button for linefeed to set Backlight (“LigT”) time.
- Press “1~9” number keys input the needed values of Backlight time (0~99 seconds), then press “B1” button again for linefeed to set On/Off of the spindle (“SpiE”).
- Press the “B2” key on control pad to set On/Off of the spindle (“SpiE”), then press the “B1” key for linefeed to set On/Off of the Manual Control (“MunL”).
- Press the “B2” key on control pad to set On/Off of the Manual Control (“MunL”).
- All the settings can be real-time saved automatically until the next updating.

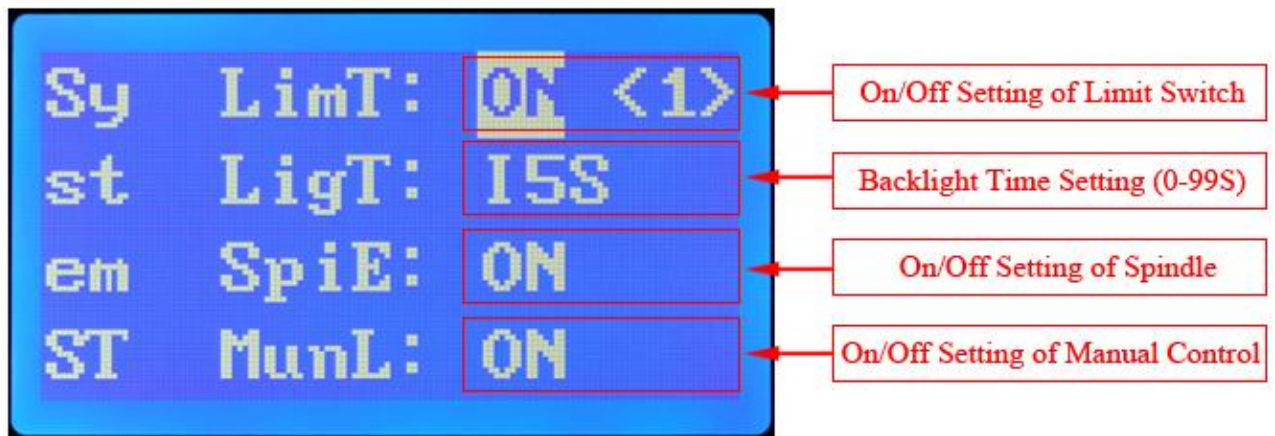


Figure 12: Main Functions Setting

- After finishing “Main Function Setting”, please press the “ST” key on control pad again to skip to the “X Axis Running Parameters Setting” in “Figure 13”.
- Please press the “B1” key for linefeed to respectively set the “Microstep Subdivision (SubN)”, “Step/Pulse (PulE)”, “Stepper Speed (SpeD)” and “Stepper Mode (Mode)” by manual control.
- Then press the “1~9” number keys to input the needed values.
- When you set the “Stepper Mode” by manual control, please press the “B2” key to choose the needed “Stepper Mode”.
- The “Microstep Subdivision” setting on the display panel must be equal to the “Microstep Subdivision” setting on the stepper driver board.
- The values of “Step/Pulse” setting on the display must be equal to that of “Steps per” showing in “Motor Turning and Setup” of Mach3 software.
- The range of the “Microstep Subdivision” is “1~99 Microsteps”
- The range of the “Step/Pulse” is “1~999 Pulses”
- The range of the “Stepper Speed” is “0~99 seconds”.
- “§” on “Stepper Mode Setting” means continuous, as long as it has be set as “§”, when pressing any one of the eight “X+, X-, Y+, Y-, Z+, Z-, A+, A-” keys on the control pad with no release, the motor will run continuously all the time.
- “1” on “Stepper Mode Setting” means continuous, as long as it has be set as “§”, even if pressing any one of the eight “X+, X-, Y+, Y-, Z+, Z-, A+, A-” keys on the control pad with no release, the motor will just run one “0.1mm” step and then stop.

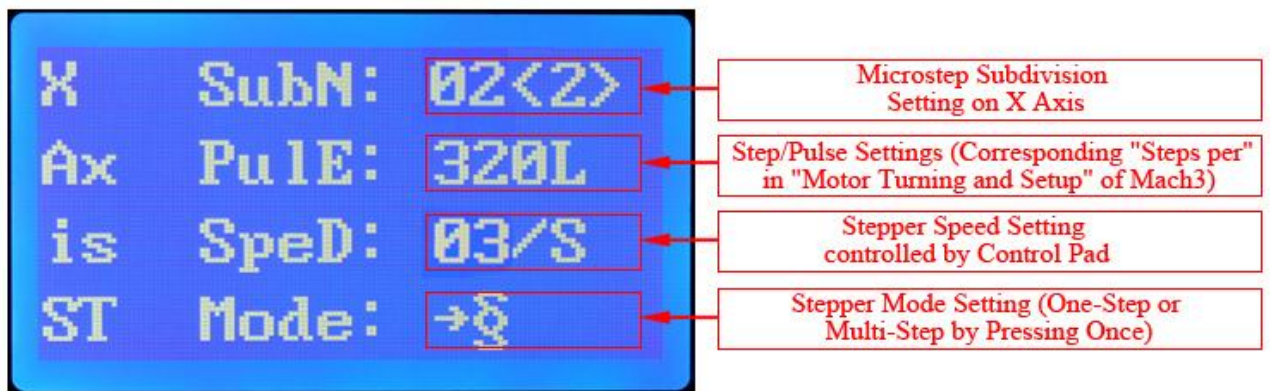


Figure 13: X Axis Running Parameters Setting

- After finishing “X Axis Running Parameters Setting”, please press the “ST” key on control pad again to skip to the “Y Axis Running Parameters Setting” in “Figure 14”.
- Please press the “B1” key for linefeed to respectively set the “Microstep Subdivision (SubN)”, “Step/Pulse (PulE)”, “Stepper Speed (SpeD)” and “Stepper Mode (Mode)” by manual control.
- Then press the “1~9” number keys to input the needed values.
- When you set the “Stepper Mode” by manual control, please press the “B2” key to choose the needed “Stepper Mode”.
- The “Microstep Subdivision” setting on the display panel must be equal to the “Microstep Subdivision” setting on the stepper driver board.
- The values of “Step/Pulse” setting on the display must be equal to that of “Steps per” showing in “Motor Turning and Setup” of Mach3 software.
- The range of the “Microstep Subdivision” is “1~99 Microsteps”
- The range of the “Step/Pulse” is “1~999 Pulses”
- The range of the “Stepper Speed” is “0~99 seconds”.
- “§” on “Stepper Mode Setting” means continuous, as long as it has be set as “§”, when pressing any one of the eight “X+, X-, Y+, Y-, Z+, Z-, A+, A-” keys on the control pad with no release, the motor will run continuously all the time.
- “1” on “Stepper Mode Setting” means continuous, as long as it has be set as “§”, even if pressing any one of the eight “X+, X-, Y+, Y-, Z+, Z-, A+, A-” keys on the control pad with no release, the motor will just run one “0.1mm” step and then stop.

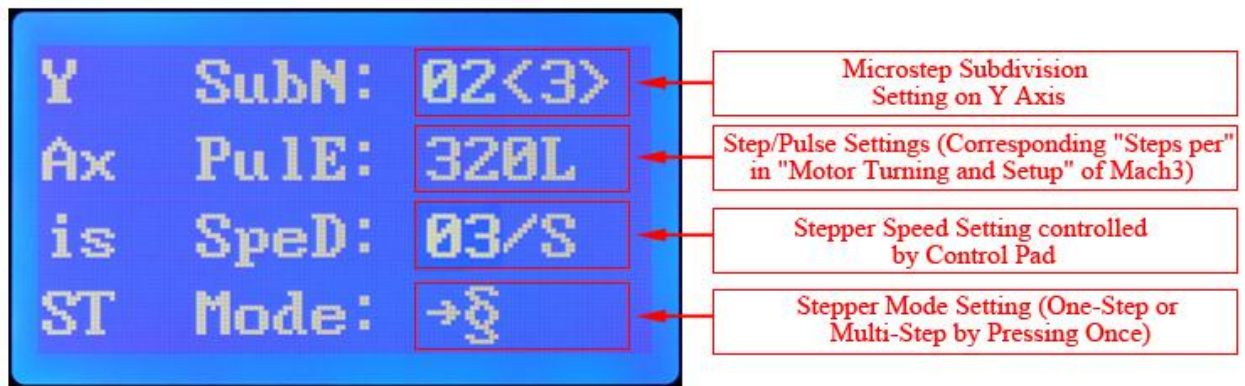


Figure 14: Y Axis Running Parameters Setting

- After finishing “Y Axis Running Parameters Setting”, please press the “ST” key on control pad again to skip to the “Z Axis Running Parameters Setting” in “Figure 15”.
- Please press the “B1” key for linefeed to respectively set the “Microstep Subdivision (SubN)”, “Step/Pulse (PulE)”, “Stepper Speed (SpeD)” and “Stepper Mode (Mode)” by manual control.
- Then press the “1~9” number keys to input the needed values.
- When you set the “Stepper Mode” by manual control, please press the “B2” key to choose the needed “Stepper Mode”.
- The “Microstep Subdivision” setting on the display panel must be equal to the “Microstep Subdivision” setting on the stepper driver board.
- The values of “Step/Pulse” setting on the display must be equal to that of “Steps per” showing in “Motor Turning and Setup” of Mach3 software.
- The range of the “Microstep Subdivision” is “1~99 Microsteps”
- The range of the “Step/Pulse” is “1~999 Pulses”
- The range of the “Stepper Speed” is “0~99 seconds”.
- “§” on “Stepper Mode Setting” means continuous, as long as it has be set as “§”, when pressing any one of the eight “X+, X-, Y+, Y-, Z+, Z-, A+, A-” keys on the control pad with no release, the motor will run continuously all the time.
- “1” on “Stepper Mode Setting” means continuous, as long as it has be set as “§”, even if pressing any one of the eight “X+, X-, Y+, Y-, Z+, Z-, A+, A-” keys on the control pad with no release, the motor will just run one “0.1mm” step and then stop.

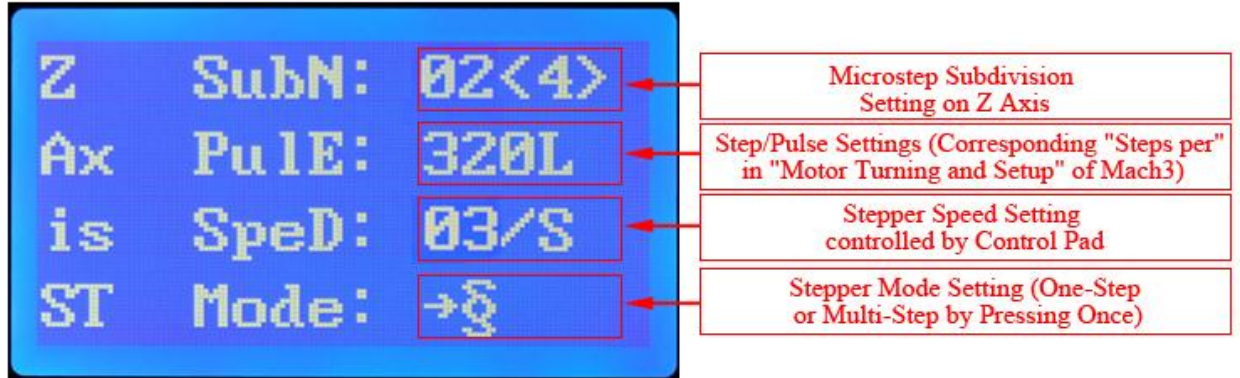


Figure 15: Z Axis Running Parameters Setting

- After finishing “Z Axis Running Parameters Setting”, please press the “ST” key on control pad again to skip to the “A Axis Running Parameters Setting” in “Figure 16”.
- Please press the “B1” key for linefeed to respectively set the “Microstep Subdivision (SubN)”, “Step/Pulse (PulE)”, “Stepper Speed (SpeD)” and “Stepper Mode (Mode)” by manual control.
- Then press the “1~9” number keys to input the needed values.
- When you set the “Stepper Mode” by manual control, please press the “B2” key to choose the needed “Stepper Mode”.
- The “Microstep Subdivision” setting on the display panel must be equal to the “Microstep Subdivision” setting on the stepper driver board.
- The values of “Step/Pulse” setting on the display must be equal to that of “Steps per” showing in “Motor Turning and Setup” of Mach3 software.
- The range of the “Microstep Subdivision” is “1~99 Microsteps”
- The range of the “Step/Pulse” is “1~999 Pulses”
- The range of the “Stepper Speed” is “0~99 seconds”.
- “§” on “Stepper Mode Setting” means continuous, as long as it has be set as “§”, when pressing any one of the eight “X+, X-, Y+, Y-, Z+, Z-, A+, A-” keys on the control pad with no release, the motor will run continuously all the time.
- “1” on “Stepper Mode Setting” means continuous, as long as it has be set as “§”, even if pressing any one of the eight “X+, X-, Y+, Y-, Z+, Z-, A+, A-” keys on the control pad with no release, the motor will just run one “0.1mm” step and then stop.

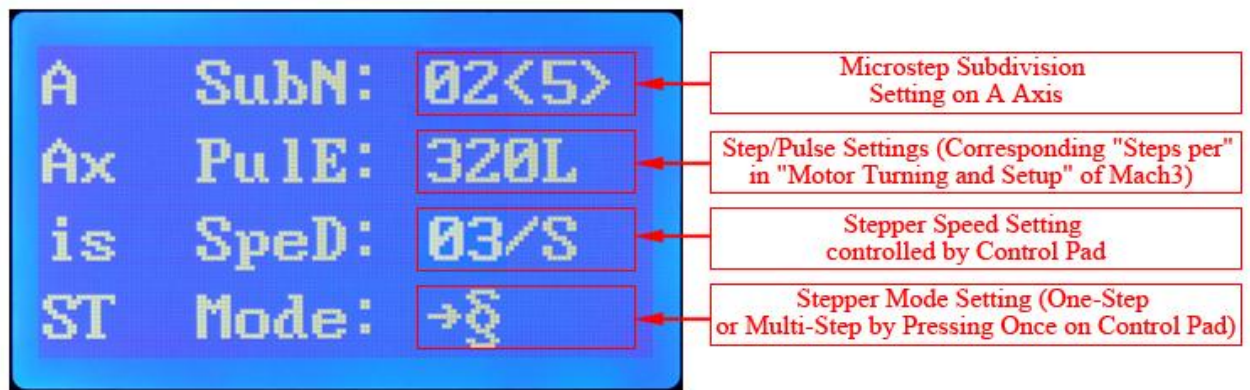


Figure 16: A Axis Running Parameters Setting

- After finishing “A Axis Running Parameters Setting”, please press the “ST” key on control pad again to skip to the “Computer G-code Recording/Running Interface” in “Figure 17”.
- When the cursor stay on “REC=”, Press the “B2” key to make “REC=” changed to “REC▶” to activate the recording function, and then run the G-Code on computer (Mach3 software), after the G-Code finish running, the G-Code on X, Y, Z axis will be saved in the memory chip built-in the driver.
- “REC=” means “Standstill” while “REC▶” means “Recording”.
- All the recorded G-Code can be saved until next updating.
- Lastly, press the “B1” for linefeed to the “Run=” key, and then press the “B2” to run the recorded G-Code.
- General speaking, since the common machine just have three axis to work simultaneously, so this drive also just can record the G-Code on X, Y, Z Axis.



Figure 17: Computer G-code Recording/Running Interface

- After finishing “Computer G-code Recording/Running Interface”, please press the “ST” key on control pad again to skip to the “Control Pad Manual Programming Interface” in “Figure 18”.
- When the cursor stay on “REC=”, Press the “B2” Key to make “REC=” changed to “REC▶” to activate the recording function, then press the “CL” key to choose the required axis which need to be input values for running.
- “REC=” means “Standstill” while “REC▶” means “Recording”.
- Considering that the Computer G-code Recording function is enough for all the three axis working without computer, to avoid repeated function, the manual programming function is mainly designed for one axis to make linear motion, therefore, the three axis cannot be manually programmed simultaneously. This function is widely used on working which just need one Axis, such as RBI machine, Conveyor etc.
- Take X axis for example, when choosing the X axis, press the required values via pressing the “0~9” number keys. After finishing input, press “B2” to quit input, and then press the “B1” for linefeed to the “Run=” key, then press the “B2” to run the input values.
- When pressing these buttons, sometimes several continuous pressing may make the process keep dead, then press the “A-” key to quit the dead status.
- After finishing all the settings above, please press the “OK” key to quit the setup mode.
- Lastly, you can press the “CL” key to respectively reset the each axis’s values left on the coordinate after working.



Figure 18: Control Pad Manual Programming Interface