iMach^{III} P2-S and P2-SE CNC Control Pendant

PREFACE

Any machine tool, including computer controlled machine tool, is potentially dangerous. VistaCNC LLC accepts no responsibility for any damage or injury caused by its use. It is your responsibility to insure that you understand the machine you are using and the procedures for safety operations.

If you are in any doubt you must seek guidance from a professionally qualified expert rather than risk injury to yourself or to others.

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WARNING

E-STOP switch button in iMach[III] P2-S CNC Control Pendant only provides Emergency STOP signal to Mach3 CNC application.

For further protection in CNC operation, other emergency protection methods may be needed.

FEATURES

- Plug n' Play USB connection and controls.
- LCD display with backlight.
- Large E-Stop button.
- 100 steps high precision MPG.
- Step, Velocity and Continuous mode jogging through MPG.
- Feed rate, Spindle speed, and Slow Jog rate change through MPG.
- Program and Spindle control.
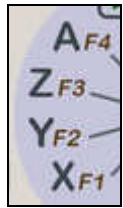- 4 user defined function buttons.
- 4 Axis selections.

PLUGIN

- Download the latest iMach3-P2-S Plugin from www.vistacnc.com download page.
- Move the plugin file into Mach3 Plugins directory.

CONNECTION and START

- Directly plug the USB cable into any USB port on the PC.
- Start Mach3 application.
- Click Config from menu, select Config Plugins, and enable iMach3-P2-S-Pendant.
- Close Mach3 application and restart Mach3 application.

FUNCTIONS and OPERATIONS

1. Axis, Step Size selection and Axis Zeroing

1.1 Axis selection

Turn axis selection knob to X, Y, Z, or A position to select an axis to jog.

☐ Selected axis name. It flashes at ½ second rate.

☐ Current Work Offset Coordinate.

☐ Fixture number

1.2 STEP SIZE selection

Turn mpg mode selection knob to STEP / STEP SIZE mode. While pressing and holding

the Enable Button, turn MPG few steps to cyclically select the step size. Different step sizes can be set up in PlugIn Configuration table.
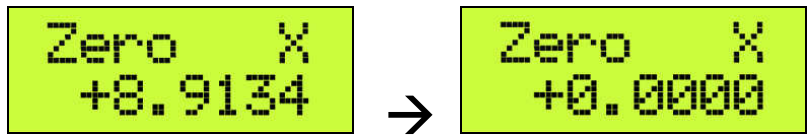
S | 0.001 ▼ | 0.0001 ▼ | 0.01 ▼ | Step Size Selection. Select NONE to Skip.

❖ ***Any other step sizes can be directly set on Mach3 Screen.***

```
Stepsize
    0.0010
```

1.3 Axis zeroing

Turn mpg mode selection knob to Axis zero mode and turn axis selection knob to select an

axis. Press and release Enable button twice within one second to zero selected axis.

```
Zero      X        Zero      X
  +8.9134            +0.0000
```
→

1.4 Pendant Offline and Screen Selection

1.4.1   Turn mode selection knob to offline/screen position **OFF SCR** to put the pendant in Offline mode. When the pendant is in Offline mode, any MPG signals are not sent to Mach3

application. Offline mode can be used to align the MPG wheel to a specific number with no axis movement.

OFFLINE
Prog Run

❖ **When the pendant is in Offline mode, the pendant will send E-stop signal to Mach3 application if the E-stop button is pressed down,**

1.4.2   When the pendant is in Offline mode, pressing and releasing Enable button within 1 second will open or close the TAB window on Mach3 screen, and pressing and holding Enable button for more than 1 second and releasing the button will change Mach3 screens. Screen selection can be setup in PlugIn configuration table.
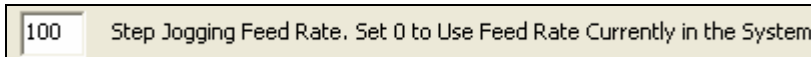
☐ Program Run screen page. Other screen page: MDI, ToolPath, Offsets, Settings and Diagnost.
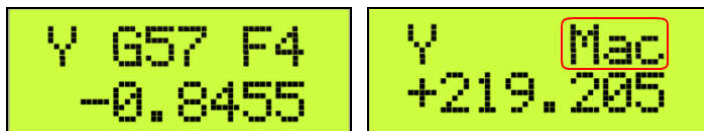
2. MPG (Manual Pulse Generator) mode

2.1 STEP mode

In STEP mode, the selected axis moves 1 step at each MPG click (detent) with the step size and feed rate currently in the system.

❖ **A fixed feed rate which is only used in Step mode can be setup in PlugIn Configuration table. Set 0 to use the feed rate currently in the system.**

| 100 | Step Jogging Feed Rate. Set 0 to Use Feed Rate Currently in the System |

In STEP/VELOCITY/CONTINUOUS mode, LCD displays axis DRO readings.

Y G57 F4
-0.8455

Y   Mac
+219.205

☐ Mac: Machine coordinates; DtG: Distance to Go

Number of decimal digits to display can be setup in the Plugin Configuration Table:

☐ 2 decimal digits Number of decimal digits for axis DRO 4

2.2 VELOCITY mode

In VELOCITY mode, axis moves at 0 to 100% of maximum axis speed based on how fast the MPG wheel is turned.

❖ *Speed change sensitivity in V mode can be set up in PlugIn Configuration table.*

Pressing and holding the Enable button will temporally slow down the axis movement.

Slow down rate can be set in Plugin configuration table Velocity Slow Down Rate 1/ 3

2.3 CONTINUOUS mode

In C mode, axis moves at constant speed of Slow Jog Rate Slow Jog Rate 50.0 % . The axis movement is independent to the speed at which the MPG is turned.

❖ *To avoid accidentally moving MPG and axis, the number of steps to delay the start of axis movement can be set in plugin configuration table.*

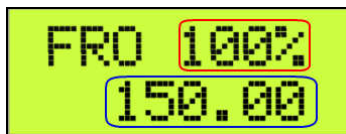| 25 | Steps to Delay the Start of Axis Movement in Continous Mode. 0 to 100. |

2.4 CONTINUOUS RATE mode C%

Press and hold the Enable button to change to C% mode. In C% mode, turning MPG changes the speed used in CONTINUOUS mode. The rate displays in Slow Jog Rate DRO (Digital Read Outs) on Mach3 Screen.

```
CON'T
    6.2%
```

2.5 FEED RATE mode F%

In F% mode, turning MPG changes feed rate overridden (FRO) rate from 1% to 250 %. FRO rate can be changed when axes are moving.
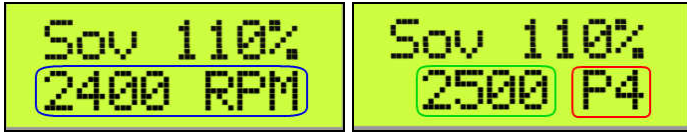
```
FRO 100%
   150.00
```

☐ Feed Rate Override percentage.

☐ Feed Rate Override, Unit/Min.

2.6 SPINDLE SPEED mode S%

Press and hold the Enable button to change to S% mode. In S% mode, turning MPG changes spindle speed overridden rate from 1% to 250 %. Spindle speed can be changed when the spindle is running.

☐ Spindle Speed RPM.

☐ Spindle Speed Override.

Check in Plugin Configuration Table to display Spindle RPM.

☐ Current pulley number.

3.   Control Operation and Function buttons

3.1 Program START / HOLD

Press and release Enable button twice within one second to cycle start the program if the

program is not running or feed hold the program if the program
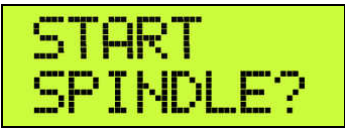
```
FEED
HOLD?
```

is running.

3.2 Program STOP / REWIND

Press and release Enable button twice within one second to stop the program if the program is running, or rewind the program if the line of the program is not zero, or stops any axis movement.
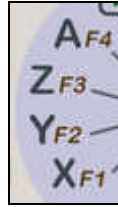
```
STOP?
REWIND
```

3.3 Spindle START / STOP

Press and release Enable button twice within one second to turn on the Spindle if the

Spindle is off
```
START
SPINDLE?
```
, or turn off the Spindle if the Spindle is on.

3.4 FUNCTION buttons

Press and release Enable button twice within one second to execute predefined Mach3 OEM button, Custom Button, or Custom Macro. Operation selection can be set up in PlugIn Configuration Table.

User defined function name will display on LCD for each selected function. Maximun16 characters can be used to name a function in Plugin Configuration Table.

4. E-Stop switch button

When the button is pressed and locked, "E-STOP" on LCD flashes at 1/2 second rate.

When Mach3 is in Emergency mode and the E-STOP button is in reset position, "RESET" on LCD flashes at ½ second rate.

4.1   E-Stop switch button in P2-S model

- Press E-STOP switch button to send out E-Stop signal to Mach3 application and activate Emergency Mode in Mach3 application.
- When the button is pressed, the switch is locked down. Twist the button to reset it on.

4.2   E-Stop switch button in P2-SE model

- Press E-STOP switch button to send out E-Stop signal to Mach3 application and activate Emergency Mode in Mach3 application. The same E-stop signal is simultaneously sent out through two separate wires to control a relay or to work with other E-stop buttons.
- When the button is pressed, the switch is locked down. The two wires are disconnected.
- Twist the button to reset the switch on, and the two wires are connected and form a closed loop.

PENDANT PLUGIN CONFIGURATION

In Mach3 menu, select Config, then Config PlugIns

In PlugIns menu, click CONFIG

SPECIFICATIONS

- Work with Mach3 R2.63 and above.
- 100 steps (clicks) per Rev MPG.
- MPG MTBF > 10000 hour.
- Shipped with10' High Speed USB cable. Extendable to 15' with extension cable, and to 45' with USB hub cables.
- Size (over all) 6.1"(L) x 3.1"(W) X 2.7"(H)