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.
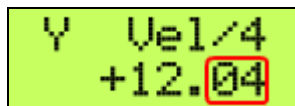
FUNCTIONS and OPERATIONS

1. Axis selection

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

2. MPG (Manual Pulse Generator) mode selection

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

 ☐ 2 decimal digits

www.vistacnc.com   - 4 -   iMach^{III} P2-S Pendant Manual v. 4.0.0

2.1 STEP, STEP SIZE and STEP JOG RATE mode

2.1.1 STEP In STEP mode, the selected axis moves 1 step at each MPG click (detent) with the step size currently in the system and with speed of step jogging rate.
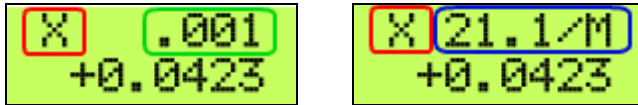
☐ Selected axis name. It flashes at ½ second rate.

☐ Step jogging rate in units/minute, ☐ Step size. The step size and rate display changes alternately every 2 seconds

2.1.2 STEP SIZE While pressing and holding the EN side button, turn MPG one or few

clicks clockwise or counterclockwise to select predefined step size.
Different step sizes can be set up in PlugIn Configuration table.

Other step size can be set directly on Mach3 screen

2.1.3 STEP JOG RATE While double clicking (press, release, and press, within half a second) and holding the EN side button, turn MPG to change step jogging rate.
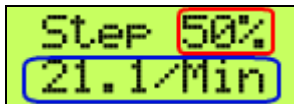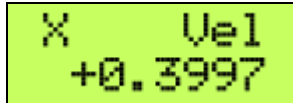
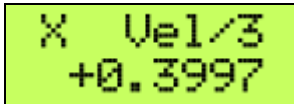☐ Percentage of the maximum axis velocity. ☐ Feedrate used in step jogging

2.2 VELOCITY mode

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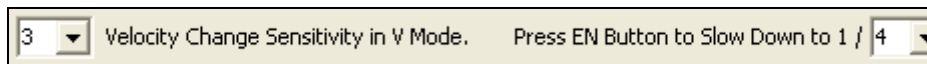
MPG wheel is turned.

2.2.2   Pressing and holding the EN side button, will temporally slow down the axis movement.
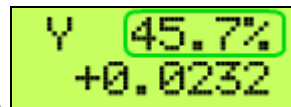
> ❖ *Speed change sensitivity can be setup in PlugIn Configuration table.*
>
> ❖ *Speed slow down ratio can be setup in PlugIn Configuration table.*

| 3 ▾ | Velocity Change Sensitivity in V Mode. | Press EN Button to Slow Down to 1 / | 4 ▾ |

2.3 CONTINUOUS mode

In C mode, axis moves at constant speed of Slow Jog Rate. 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. |
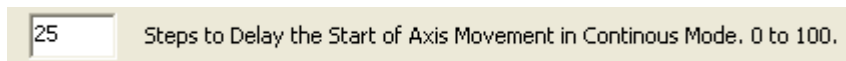
2.4 CONTINUOUS RATE mode C%

Press and hold EN side 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.

```
Cont%
      94.2%
```

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 EN side 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.
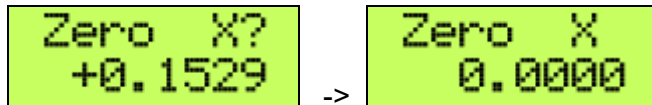
```
Sov 110%        Sov 110%
2400 RPM        2500 P4
```

□ Spindle Speed RPM. □ Spindle Speed Override. □ Current pulley number.

Check Display Spindle Speed RPM in Plugin Configuration Table to display Spindle RPM.

2.7 AXIS ZEROING

Double click (press and release twice within one second) the EN side button to zero the select axis.

```
Zero   X?        Zero   X
 +0.1529    ->          0.0000
```

2.8 PENDANT OFFLINE and SCREEN SELECTION

2.8.1   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
```
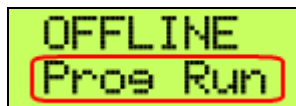
2.8.2   When the pendant is in Offline mode, pressing and releasing the EN side button within 1 second will open or close the TAB window on Mach3 screen, and pressing and holding Enable button for more than 1 second and releasing the button will change Mach3 screens. Screen selection can be setup in PlugIn configuration table.

□ Program Run screen page. Other screen page: MDI, ToolPath, Offsets, Settings and Diagnost.
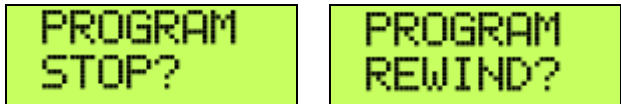
3.   Control Operation and Function buttons

3.1   START / HOLD button ▶⏸ :

Double click (press and release twice within one second) the EN side button ◀ to execute the function.
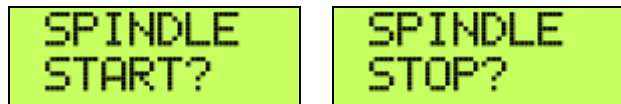
PROGRAM
START?

PROGRAM
PAUSE?

PROGRAM
RESUME?
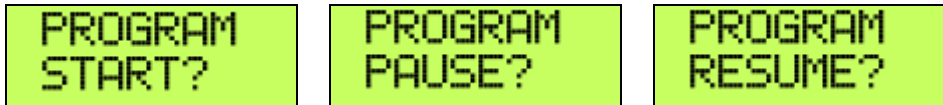
3.2   STOP / REW button ■◀◀ :

Double click the EN side button ◀ to execute the function.

PROGRAM
STOP?

PROGRAM
REWIND?

3.3   SPINDLE ON / OFF button 🔲 :

Double click the EN side button ◀ to execute the function.
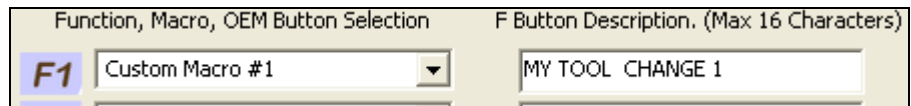
SPINDLE
START?

SPINDLE
STOP?

3.4   FUNCTION buttons
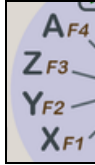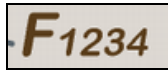
Double click the EN side button.to execute predefined Mach3 OEM button, Custom Button, or Custom Macro. Operation selection can be set up in PlugIn Configuration Table.

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.
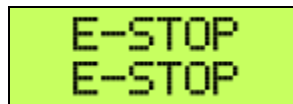
Function, Macro, OEM Button Selection		F Button Description. (Max 16 Characters)
F1	Custom Macro #1	MY TOOL CHANGE 1

MY TOOL CHANGE 1

4.   E-Stop switch button

## 5.1   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.

E-STOP
E-STOP

- When the button is pressed, the switch is locked down. Twist the button to reset the button and reset E-STOP.

5.2   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.
- The same E-stop signal is simultaneously sent out through a 2-wire loop, which can be used to control a relay or to connect with other E-stop buttons.
- When the button is pressed and the switch is locked down, the 2-wire loop is open.
- Twist the button to reset the switch and reset E-STOP signal, and at the same time, the two wires are connected at the switch end and form a closed loop.

- ❖ A EE box is needed as an interface to separate the 2-wire loop and USB signal.
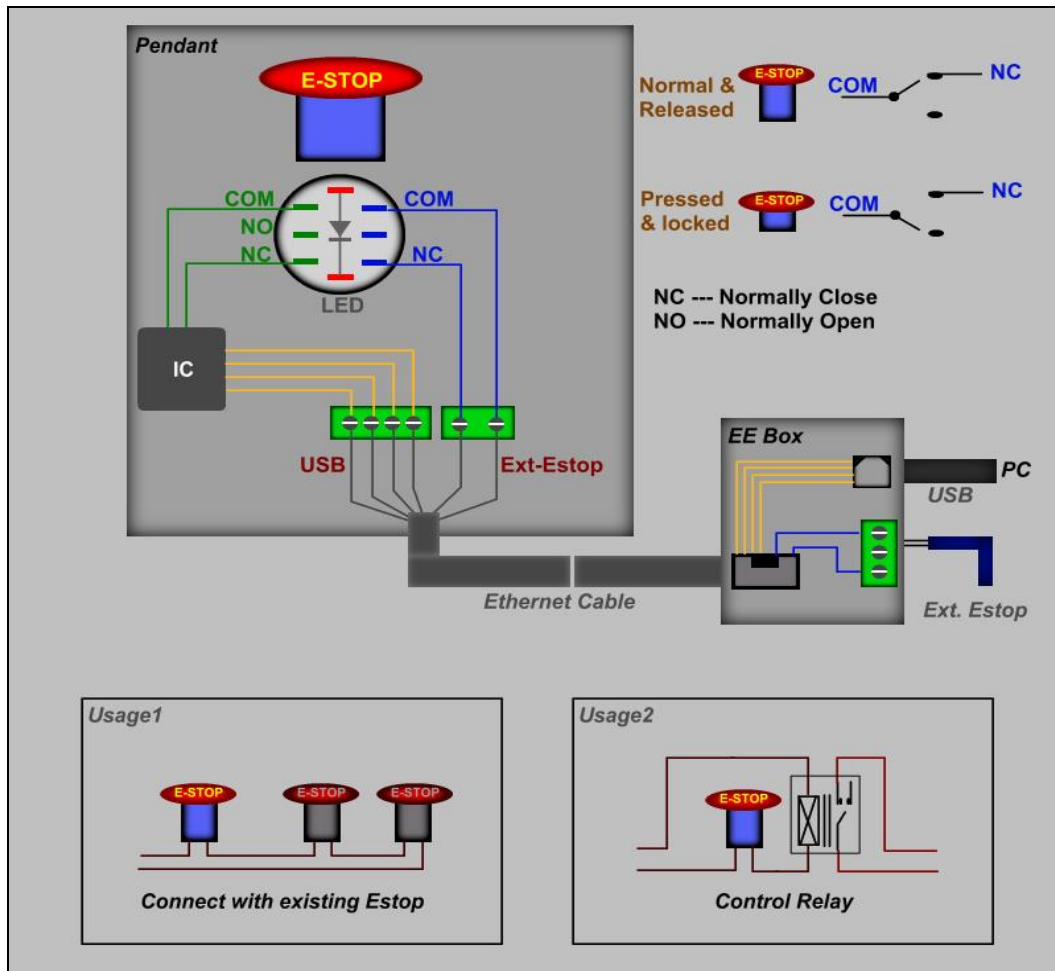
E-STOP switch and EE box connection in P2-SE

PENDANT PLUGIN CONFIGURATION

In Mach3 menu, select Config, then Config PlugIns. In Config 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, or to 45' with USB hub cables.
- Size (over all) 6.1"(L) x 3.1"(W) X 2.7"(H)