VistaCNC P1A-(E) CNC Control Pendant for LinuxCNC

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 ensure 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} P1A CNC Control Pendant only provides Emergency STOP signal to LinuxCNC application.

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

FEATURES

- Plug n' Play USB connection and controls.
- 100 steps high precision MPG.
- Step, Velocity and Continuous mode jogging through MPG.
- Feed rate and Spindle speed through MPG.
- Quick step size selection.
- 4 Axis selections.
- E-Stop with flash LEDs indicator.

Driver and HAL file installation

Download the latest P1A LinuxCNC upgrade package from www.vistacnc.com download page, and unzip the package.

The package includes following files:

1. This manual
2. **Pendant FW update procedure** --- for pendant firmware upgrade
3. Pendant FW Loader --- tools for FW upgrade
4. P1A_LinuxCNC_FW_v --- FW for LinuxCNC
5. **P1A LinuxCNC Installation Instruction** --- for driver installation
6. 99-vistacnc-pendant.rules
7. vc-p1a --- driver file
8. vc-p1a.hal ---HAL file
9. Makefile --- to move 99-vistacnc-pendant.rules, vc-p1a, vc-p1a.hal into the corresponding folder.

Refer to "iMach3 Pendant FW update procedure" to upgrade the pendant firmware (FW) to LinuxCNC if the pendant was used with other CNC application or a newer FW version is available.

The upgrade application needs to be run under Windows PC.

Refer to "P1A LinuxCNC Installation Instruction" to install driver and other files and add lines to the .ini file.

CONNECTION and START

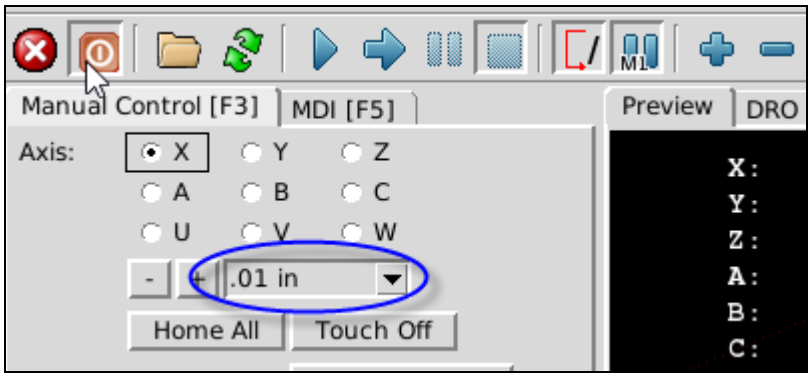
- Directly plug the USB cable into any USB port on the PC.
- Start LinuxCNC application.

FUNCTIONS and OPERATIONS

1. Axis selection

1.1 Axis selection

Turn axis selection knob to X, Y, Z, or A position to select an axis to jog. Select step size on AXIS UI



2. MPG (Manual Pulse Generator) mode

2.1 STEP 

In STEP mode, the selected axis moves 1 step at each MPG click (detent) with the step size currently in the AXIS UI.

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.

2.3 CONTINUOUS mode 

In C mode, axis moves at constant speed with current feed override rate. The axis movement is independent to the speed at which the MPG is turned.

2.4 STEP SIZE 

Currently not in use.

2.5 AXIS ZEROING 

Turn MPG one or few clicks clockwise or counterclockwise to zero selected axis.
HALUI MDI COMMAND lines are needed in .ini file. See P1A LinuxCNC Installation Instruction.pdf.

2.6 STEP JOG RATE 

Currently not in use.

2.7 OFFLINE

When the pendant is in Offline mode, any MPG signals are not sent to LinuxCNC application. Offline mode can be used to align the MPG wheel to a specific number with no axis movement.

2.8 FEED OVERRIDE mode 

In F% mode, turning MPG changes current feed overridden (FO) rate.

2.9 SPINDLE OVERRIDE mode 

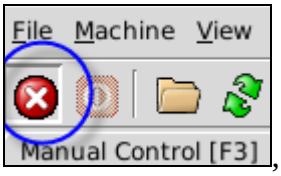
In S% mode, turning MPG changes spindle speed overridden rate.

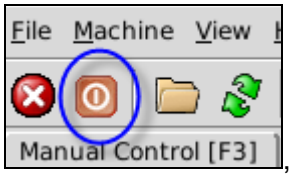
2.10 CONTINUOUS RATE mode 

Same as F%. see 2.5 FEED OVERRIDE mode.

3. E-Stop switch button

3.1 E-Stop switch button in P1A model

- Press E-STOP switch button to send out E-Stop signal to LinuxCNC application and activate the Emergency Mode.
- When the button is pressed, the switch is locked down. Twist the button to release the button.
- When the button is pressed and locked, the embedded LED flashes at ¼ second rate.
- When LinuxCNC AXIS UI Emergency button is pressed 

, the embedded LED flashes at ¼ second rate.
- When LinuxCNC AXIS UI Machine Power button is not pressed 

, the embedded LED flashes at ½ second rate.

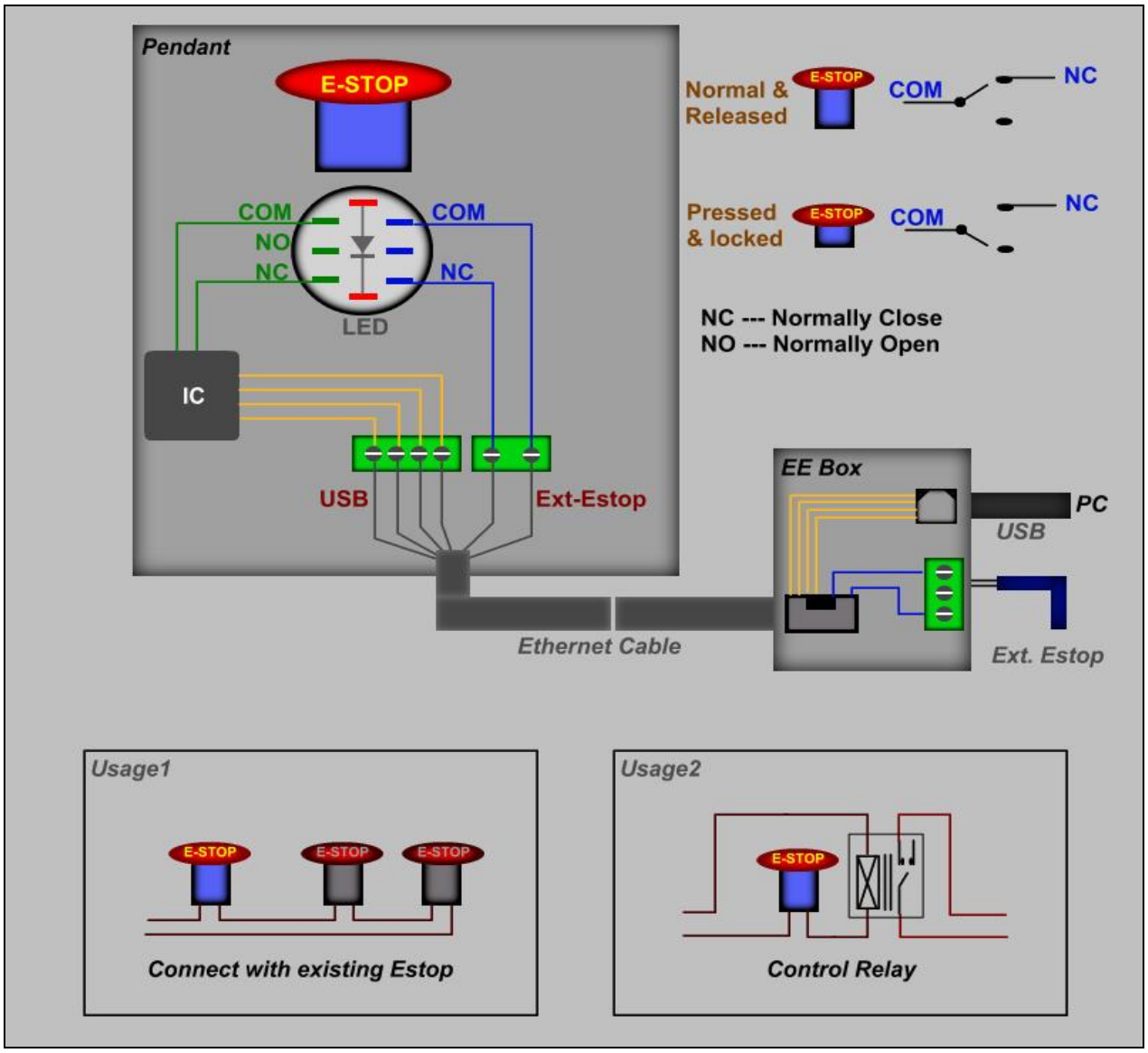
3.2 E-Stop switch button in P1A-E model

- Press E-STOP switch button to send out E-Stop signal to LinuxCNC application and activate Emergency Mode in LinuxCNC.

- 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.



SPECIFICATIONS

- 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)