

FLASHCUT CNC

CONTROL MADE SIMPLE

USB Pendant Hardware and Setup Manual



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Getting Started

About This Manual

CNC is a unique application involving hardware and software. We recommend that you read all of these instructions before using the product.



Since automated machining is potentially dangerous, please take the time to completely read through this manual and the software User's Guide to understand the operation of the electronics, software and machine before cutting a part.

Turning Off the Controller



Always turn off the CNC Controller when it is not in use.

Safety and Usage Guidelines



When running an automated machine tool, safety is of the utmost importance. For proper and safe use of the CNC program and your CNC machine, the following safety guidelines must be followed:

- 1. Never let the machine tool run unattended.**
- 2. Require any person in the same room as a running machine tool to wear safety goggles and to stay a safe distance from the machine.**
- 3. Allow only trained operators to run the machine tool. Any operator must have:**
 - Knowledge of machine tool operation.**
 - Knowledge of personal computer operation.**
 - Knowledge of Microsoft Windows.**
 - Good common sense.**
- 4. Place safety guards around the machine to prevent injury from flying objects. It is highly recommended that you build a safety shield around the entire tool envelope.**
- 5. Never place any part of your body within the tool envelope while the machine is online, since unexpected machine movement can occur at any time.**
- 6. Always keep the tool envelope tidy and free of any loose objects.**
- 7. Be on alert for computer crashes at all times.**

WPI, Inc. is not responsible for the safe installation and use of this product. You and only you are responsible for the safety of yourself and others during the operation of your CNC machine tool. We supply this product but have no control over how it is installed or used. Always be careful!

WPI, Inc. or its affiliates are not responsible for damage to any equipment or workpiece resulting from use of this product.

If you do not understand and agree with all of the above safety guidelines, do not use this product.

USB Pendant Kit Parts

Thank you for purchasing the USB Pendant. In your kit, you should have the following:

- USB Pendant (12-key w/ joystick or 24-key)
- USB extension cable
- Protective pendant cover
- Sheet of button labels

Installing the Pendant

Preparing the Hardware

Remove the individual clear plastic button covers using a small flat-head screwdriver or similar tool. Then, apply the provided function stickers to each button in the same order as the sticker sheet. If the pendant will be configured alternatively to the default, print and apply custom function stickers. Replace the button covers.

Place the soft protective pendant cover over the unit. Remove each adhesive strip and press each edge down to seal the cover on the device. This protects against chips, oil, and dust but does not provide a complete seal against immersion or heavy spraying.

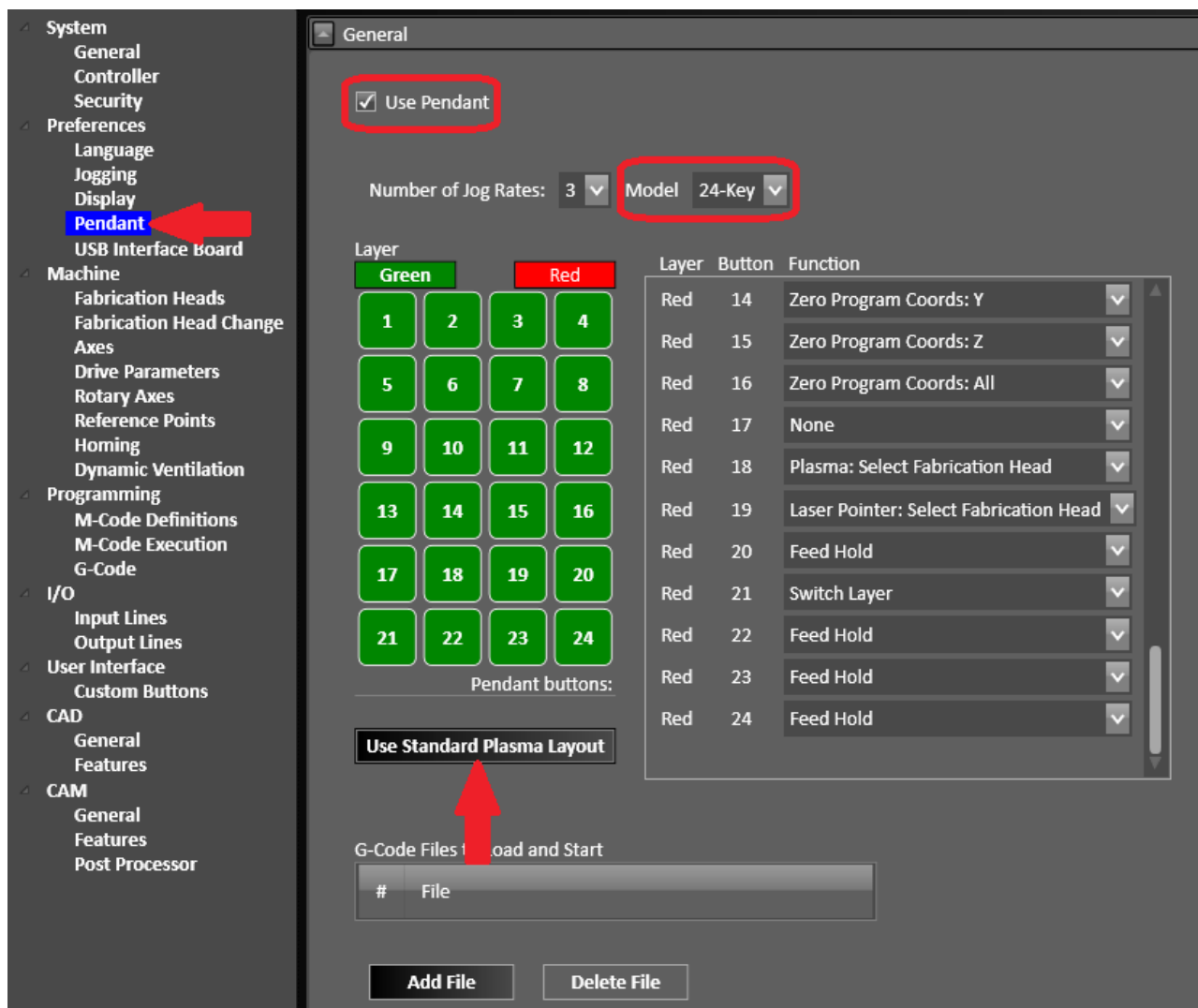
If needed, install the USB extension cable at the end of the device's cable. Then, plug the pendant into a USB port on the machine's computer.

Configuring the Pendant

In the CNC software, open the Configuration by clicking the double-gear button to the upper right.



Navigate to the “Preferences...Pendant” page of the configuration. Click the ‘Use Pendant’ box to enable the device. Next, select the correct model of USB Pendant from the ‘Model’ dropdown. Then, click the ‘Use Standard Plasma Layout’ to assign default functions to each button.



System

- General
- Controller
- Security

Preferences

- Language
- Jogging
- Display
- Pendant**
- USB Interface Board

Machine

- Fabrication Heads
- Fabrication Head Change Axes
- Drive Parameters
- Rotary Axes
- Reference Points
- Homing
- Dynamic Ventilation

Programming

- M-Code Definitions
- M-Code Execution
- G-Code

I/O

- Input Lines
- Output Lines

User Interface

- Custom Buttons

CAD

- General
- Features

CAM

- General
- Features
- Post Processor

General

Use Pendant

Number of Jog Rates: 3 Model: 24-Key

Layer

Layer	Button	Function
Green	1	
Green	2	
Green	3	
Green	4	
Green	5	
Green	6	
Green	7	
Green	8	
Green	9	
Green	10	
Green	11	
Green	12	
Green	13	
Green	14	Zero Program Coords: Y
Green	15	Zero Program Coords: Z
Green	16	Zero Program Coords: All
Green	17	None
Green	18	Plasma: Select Fabrication Head
Green	19	Laser Pointer: Select Fabrication Head
Green	20	Feed Hold
Green	21	Switch Layer
Green	22	Feed Hold
Green	23	Feed Hold
Green	24	Feed Hold

Pendant buttons:

Use Standard Plasma Layout

G-Code Files to Load and Start

#	File
---	------

Add File Delete File

The pendant will now perform the functions as labeled by the provided stickers. If custom functions are desired, Use the menu to the right to edit each button's function as desired. The layout shown in the configuration shows the numerical position of each button on the pendant. It is recommended to configure one button on each color layer for 'Switch Layers' and one for 'Feed Hold'.

Available Functions

Switch Layer

Switches the pendant's active layer between Red and Green. This allows twice as many functions. If using both layers, make sure this function is configured on each layer.

Feed Hold

Feed holds the current operation. If using both layers, make sure this function is configured on each layer for safety.

Zero Program Coords

This button will zero the Program coordinates for the axis or axes selected.

Sense Program Zero

Pressing this button will begin a zero sense for the selected axis. Make sure that the axis corresponds to a fabrication head that is set up for zero sensing.

Keystroke: Enter

This button will replicate pressing the 'Enter' key. This is useful to acknowledge and clear pop-up messages during operation.

Spindle Speed: (Faster/Slower)

Increases or decreases the spindle speed for mill and router fabrication heads. Spindle speed control must be set up on the "Machine....Fabrication Heads" page of the configuration.

Control Panel

Jog

Switches to 'Jog' mode on the manual motion control panel.

Point

Switches to 'Move to Point' mode on the manual motion control panel.

Home/MDI/Probe

Legacy functions for upgrade compatibility—these will have no effect.

Jog

Axis Letter+Direction

This button will jog the machine in the stated axis in the state direction as if the software button was pressed.

Continuous

Enters continuous jog mode—axis will move while button stays pressed.

Distance #

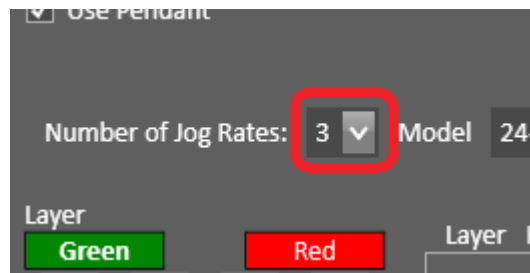
Enters distance jog mode—axis will move the configured distance each time the button is pressed. Navigate to “Preferences....Jogging” to configure each distance.

Step

Enters step jog mode—axis will move a single step pulse each time the button is pressed.

Rate

Changes the continuous jog speed. Use the dropdown to select the number of desired jogging feedrates. Each rate is spaced at even intervals between Slow and Max feedrates. Navigate to “Preferences....Jogging” to configure Slow feedrate and “Machine....Axes” to configure Max feedrate.



G-Code

Faster/Slower

Increases or decreases the Feedrate Override by 2%.

Start (continuous/step/momentary)

Emulates the various ‘Run G-Code’ software buttons.

Run in reverse (continuous/step/momentary)

Emulates the various ‘Run G-Code In Reverse’ software buttons.

Point

Move to Program Zero

Moves the machine to the Program Zero of each axis.

Move to Machine Zero

Moves the machine to the Machine Zero of each axis, if configured.

Home

Seek Home

Runs the homing routine for all axes configured to seek home. Navigate to “Machine....Homing” for setup.

Fast Home

Legacy function for upgrade compatibility—this will have no effect.

Aux: Toggle Output #

When this button is pressed, the given Output line will toggle between on/off.

Execute

Output M-Code Position #

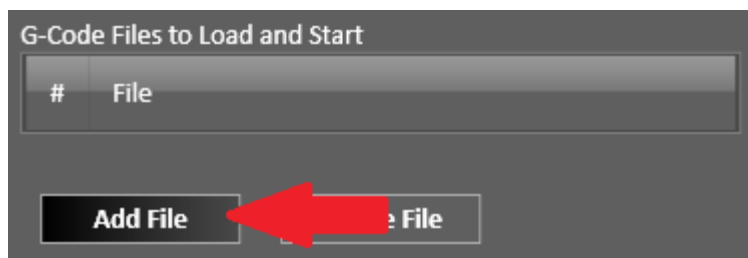
This function runs the Output M-Code in the given position number. Navigate to “Programming....M-Code Definitions” to set up each position.

Macro M-Code Position #

This function runs the Macro M-Code in the given position number. Navigate to “Programming....M-Code Definitions” to set up each position.

Load G-Code and Start File #

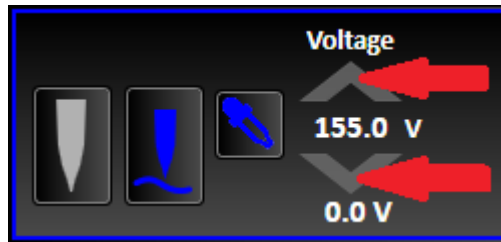
When this button is pressed, the given position of G-Code file will be loaded and automatically begin running. To set up each position, click the ‘Add File’ button on this page and navigate to the desired program using the browser.



Plasma

Increase/Decrease THC Set Point

When this button is pressed, it emulates the Increase/Decrease Set Point software buttons.

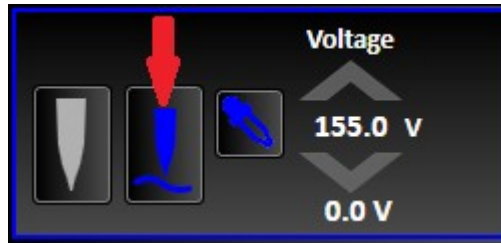


Select Fabrication Head

This function changes the current active fabrication head to the plasma torch.

Toggle THC On/Off

When this button is pressed, it emulates the THC On/Off button in the software.



Laser Pointer: Select Fabrication Head

This function changes the current active fabrication head to the laser pointer.

