Eding CNC
driving creation

User Manual
Wireless Pendant

Document Release 1.0

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Document History

Version	Date	Author	Comment
1	21-12-2017	Bert Eding	Initial version, derived from previous wireless pendant.

Table of contents

1 Introduction and intended use

The Wireless Pendant is really useful for positioning and zeroing and other functions on the machine, it is not really suited for milling because there is no feel of the force, the milling bit will break easily. The movement may not be entirely smooth. The pendant is easy to use, and of course wireless.

It operates with batteries; the batteries will last about 1 month in normal operation.

Due to the resolution of the Pendant MPG, 100 pulses/revolution lower acceleration must be used to get smooth movement. The movement with the wired Pendant can so smooth motion with higher acceleration. The wired Pendant has 400 pulses/revolution.

Please note, the rules for safety about using wireless pendants can vary per country. The usage of this pendant is at your own risk.

2 Operating instructions

2.1 INSTALLING THE WIRELESS PENDANT

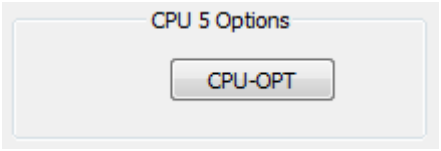
1. Put 2 AA batteries in the Pendant. When the pendant is not used it recommended to switch it off, so the batteries are saved.

2. Connect USB RECEIVER to USB port of PC. The USB receiver must have free sight to the pendant. This means, it will not work well if the USB receiver is built into a metal cabinet and the pendant is outside.

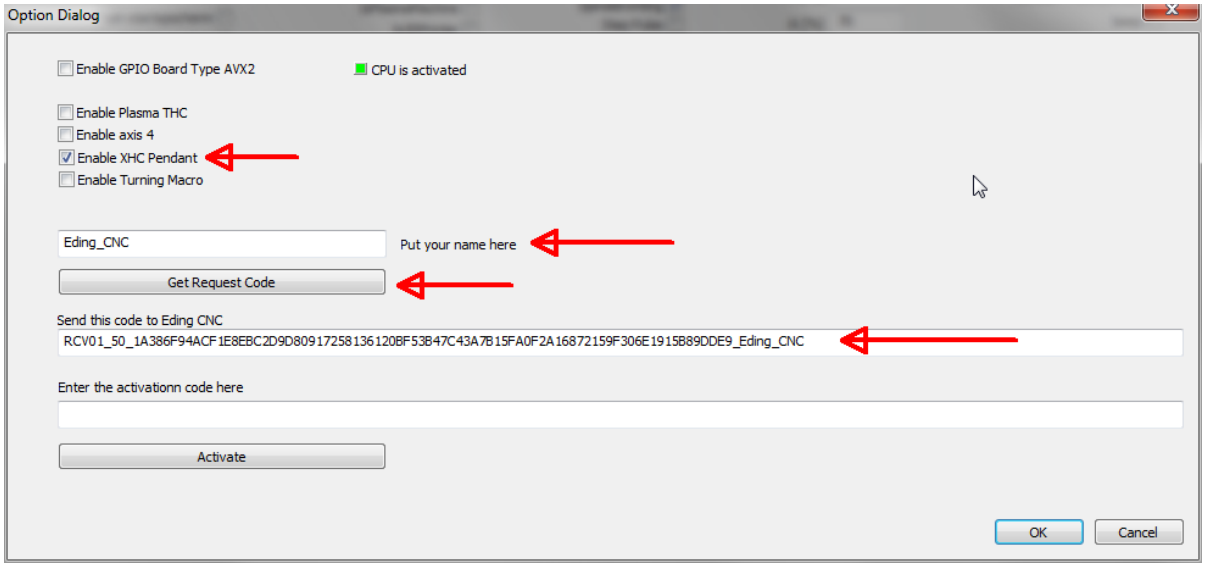
2.2 OBTAINING THE ACTIVATION CODE

On the latest version of the pendant ist no activation required!

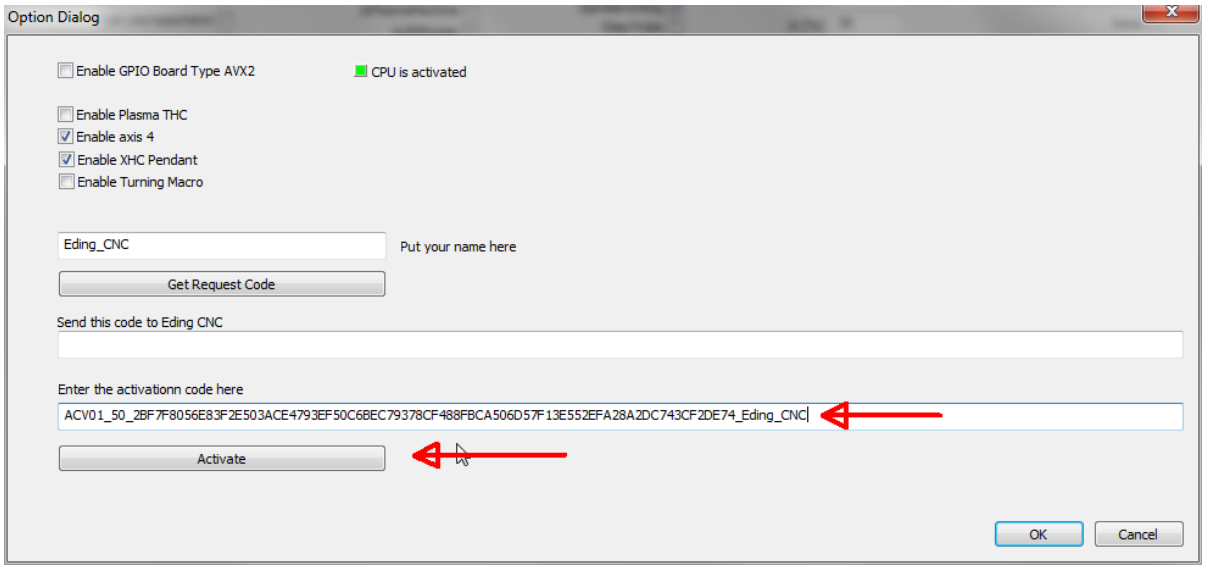
To enable you CPU for the pendant you must obtain an activation code to be able to use it. This works as follows, press this button on the 2nd setup screen:



In the next screen, enable the wireless pendant, put your name, press "Get request Code" button. Send the code to Eding CNC to obtain the activation code.



You will receive an activation code by email. Put this code in the lower text box and press "Activate". You can now use the XHC Wireless Pendant

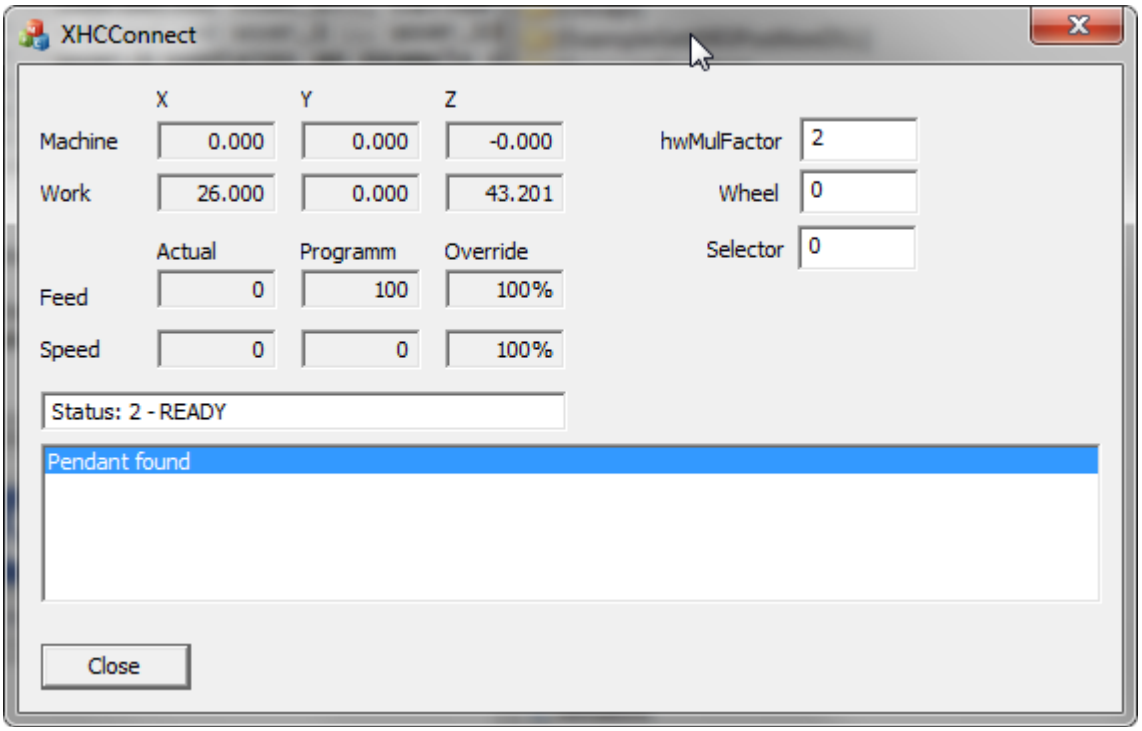


(Note: this is only needed for the wireless pendant, not for the wired pendant from Eding CNC).

The activation code is free for pendants that are obtained from Eding CNC directly or one of it resellers. For externally bought pendants there is a fee to be paid. Ask Eding CNC for the price.

2.3 USING THE PENDANT

Once the use of the wireless pendant has been enabled, (re)start the software. An additional, program that communicates with the pendant is also started, it looks like below and shows infoormation from the pendant:



It shows "Pendant found" if everything is OK. You can leave this running on the background, it will perform the Pendant functionality for Eding CNC.

2.4 THE BUTTONS

Reset	Same function as *Reset* (F1) in Eding CNC
Stop	Pause running job
Start/Pause	Start job or pause a running job
Feed+	Increase the FeedOverride percentage
Feed-	Decrease the FeedOverride percentage
Spindle+	Increase the SpeedOverride percentage
Spindel-	Decrease the SpeedOverride percentage
M_HOME	Perform the Homing Sequence, subroutine *home_all* is called inside *macro.cnc*. You can customize the order of homing and do extra movements there
Safe-Z	Z to safe height
W_HOME	If axis selector is ***off***: G0 X0 Y0 If axis selector is on ***X, Y, Z, A, B, C***: Zero axis work position. Tool radius of actual tool in spindle *is* considered for X and Y. So, if lower left corner of material is touched in X or Y, the position is set to –Tool Radius, the result is that the material corner will be 0
S-ON/OFF	Switch Spindle ON/OFF
Probe-Z	Executes sub routine *xhc_probe_z*, you are free to implement this function inside *macro.cnc* or *user_macro.cnc*
Continuous / Step	Switch interpreter between single step and continuous running mode.
Macro-1 ... Macro-10	Executes macro function *xhc_macro_1* ... *xhc_macro_10*. Press '***Fn'***, then the required blue macro button. You are free to implement his function inside *macro.cnc* or *user_macro.cnc*
Axis selector	Select axis for MPG
Resolution selector	If *Axis Selector* is on ***X, Y, Z, A, B or C***: select resolution for MPG If *Axis Selector* is on ***OFF***: change FeedOverride
MPG	Move the selected axis by MPG rotation

2.5 EXAMPLE OF HOW TO USE A MACRO BUTTON

Add a subroutine with the right name in the macro.cnc and execute what you want there:

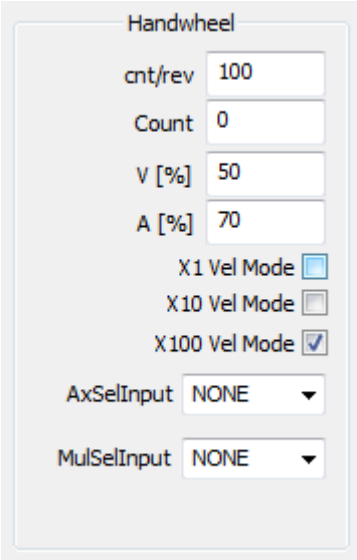
```
Sub xhc_macro_1
    Msg "Hallo this is xhc macro 1 button is pressed"
    ;Add any EdingCNC compatible g-code you want here
EndSub
```

You can do this for all pendant's macro buttons.

2.6 SETUP AND BEHAVIOR OF THE MPG

The resolution of the MPG is 100 pulses per revolution. This is relatively low for an MPG, but in practice not a big issue. If you have a machine with high acceleration it may be noticed that the move is not smooth. This is because every count of the MPG gives a small displacement and if your machine has high acceleration the displacement is already done when the next count pulse is read. This can be smoothed out by setting the speed and acceleration percentage lower, such that the movement is smooth enough for normal MPG operation.

The parameters are in the setup of the software:



Cnt/Rev: The number of counts of the hand wheel for one revolution, usually 400 for most CNC handwheels.

Count: Counter for wired handwheel, not used for the pendant, normally 100 pulses/rev.

V[%]: Percentage of velocity from selected axis, this is the maximum **velocity** the axis will move when using the hand wheel.

A[%]: Percentage of acceleration from selected axis, this is the maximum **acceleration** the axis will move when using the hand wheel..

X1..X100 Vel Mode:

In velocity mode the most important is that the movement stops immediately when the rotation of the hand wheel stops. The position of the hand wheel will not be maintained if velocity mode is on. The position of the handheld is maintained if velocity mode is off. This also means that the axis may not immediately stop if the handwheel rotation

stops. When turning beyond the limits of the axis, you must turn back the handwheel the same amount before the axis starts moving again.
My own experience is that it works best to use velocity mode at X100 only. Just play with it to experience the behavior and make your own choice.

These parameters allow you to tune the motion behavior such that it has acceptable smoothness and speed.