

Next Wave *Automation*

TOUCH PROBE



OWNER'S MANUAL

Version1.1
12 February 2017

Updates of this manual are
Available at www.NextWaveAutomation.com

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Box Contents

- Next Wave Automation Touch Probe Manual
- Attachment Arm
- Attachment Screw
- Alignment Pin
- Touch Probe

General – The Touch Probe

Warnings

- Do not pull or push on the stainless-steel tip
- Do not pull or push on cord attached to the Touch Probe
- Do not remove the top of the Touch Probe
- Plug the Touch Probe into your CNC Controller only after the Controller has powered on

The Next Wave Automation Touch Probe is an accessory for Next Wave Automation CNC machines. It is currently compatible with the Piranha XL and the Shark HD4. These machines have both the hardware and software to support the use of these probes.

Using these probes allows for easily finding the center of the material placed on your CNC machine. The Touch Probe can find the center point of an object, or its center along either the X or Y axes. After the setup, the center finder application will use the touch probe to find the center of the material, then move the tool (router bit) to that XY center point.

Setup

The Attachment Arm included with the Touch Probe is how the probe is attached to your CNC machine. The Piranha XL and Shark HD4 have two holes on the side of the cradle the router is placed into (see image on page 2). The hole closest to the machine's front is tapped, and meant for the Attachment Screw included with the probe. The hole towards the back of the machine is not tapped, and is meant to hold the Alignment Pin.

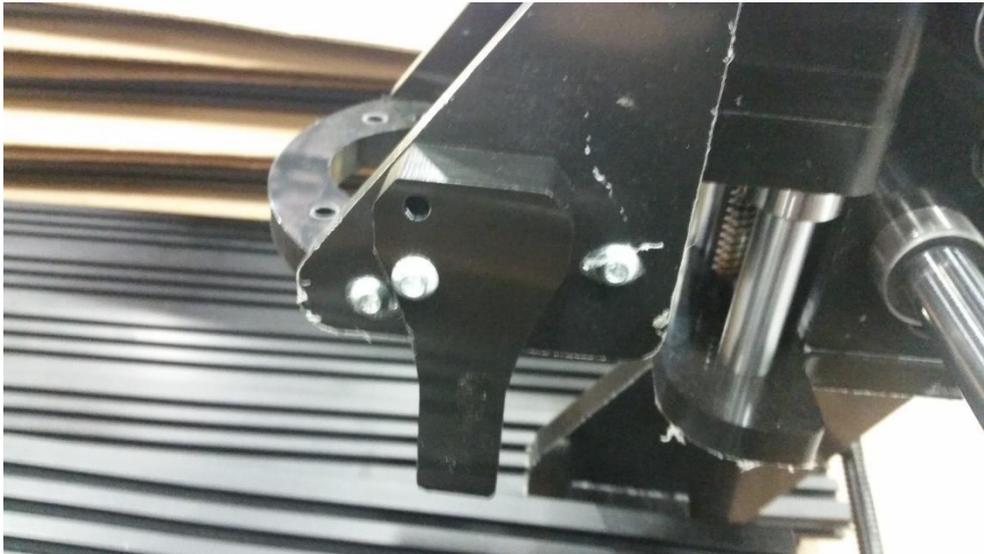
The Attachment Arm has four holes. Select one of the two rows of holes on the Attachment Arm to use. When attached, the tip of the Touch Probe should be lower than your router's bit when the router is mounted on the CNC machine.

Once you have chosen which row of holes to use, push the Alignment Pin all the way into the Attachment Arm. You should use the hole that does not go all the way through the Attachment Arm for this.



Touch probe and attachment arm

Next, place the other end of the Alignment Pin into the appropriate hole on your CNC machine. Use the Attachment Screw in the remaining hole to fully secure the Attachment Arm to your CNC machine.



Securing the attachment arm

The Touch Probe snaps magnetically into the hole at the tip of the Attachment Arm. When attaching and removing the Touch Probe from the Attachment Arm, do not pull on the stainless steel tip of the Touch Probe.

How to Use

The Touch Probe can be used to automatically find the center of material placed onto a CNC machine. Once the touch probe is fully secured to the Attachment Arm, power on your CNC Controller. Plug the Touch Probe into your CNC Controller only after the Controller has powered on.

Press the Apps button from the main menu on the CNC Controller. From there, select Center Finder. The Center Finder menu has 3 functions and three settings:

Functions

- Find Center Both X & Y ○ Find the center of an object, using both length and width
- Find Center X Width ○ Find the center of an object along the X axis, ignoring length, using only width
- Find Center Y Length ○ Find the center of an object along the Y axis, ignoring width, using only length Settings
- Probing Speed ○ The speed at which the Touch Probe is moved while running a function
- Probe to Bit Offset X ○ The distance between the router bit and the tip of the Touch Probe along the X axis
- Probe to Bit Offset Y ○ The distance between the router bit and the tip of the Touch Probe along the Y axis

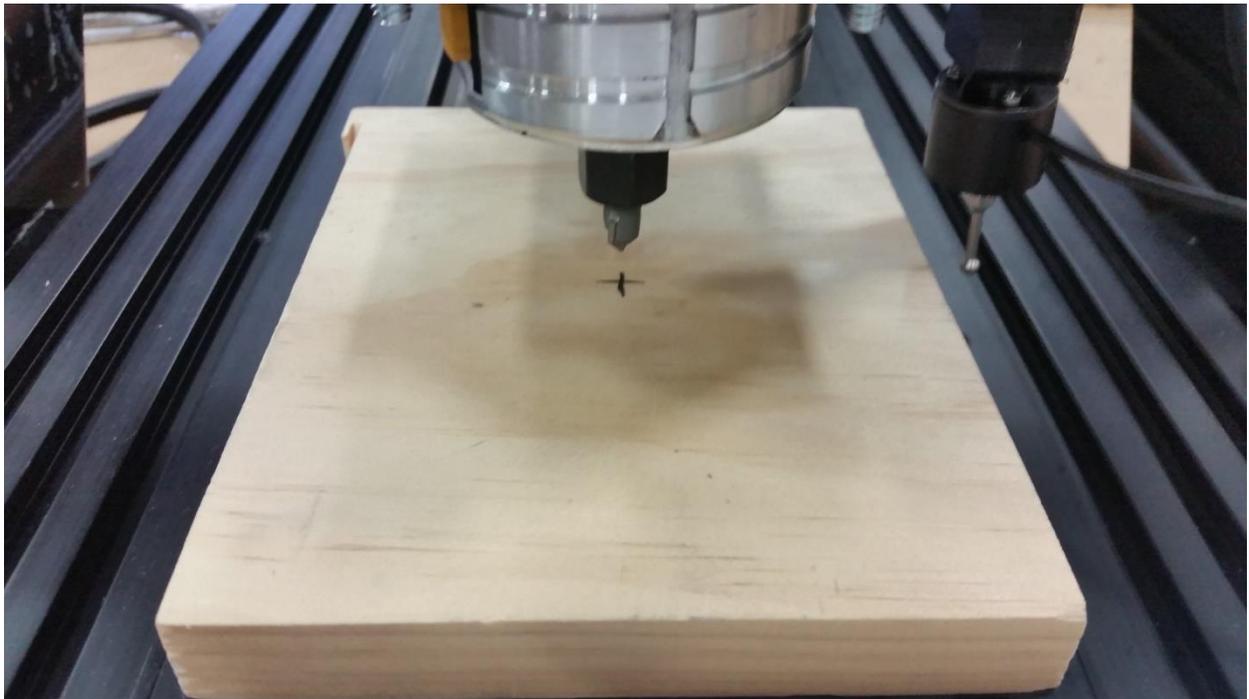
The Probe to Bit Offset values need to be set from this menu before the Touch Probe is used. These values may vary slightly between each CNC machine. To determine these values, follow these steps:

Finding the Probe Offset Values

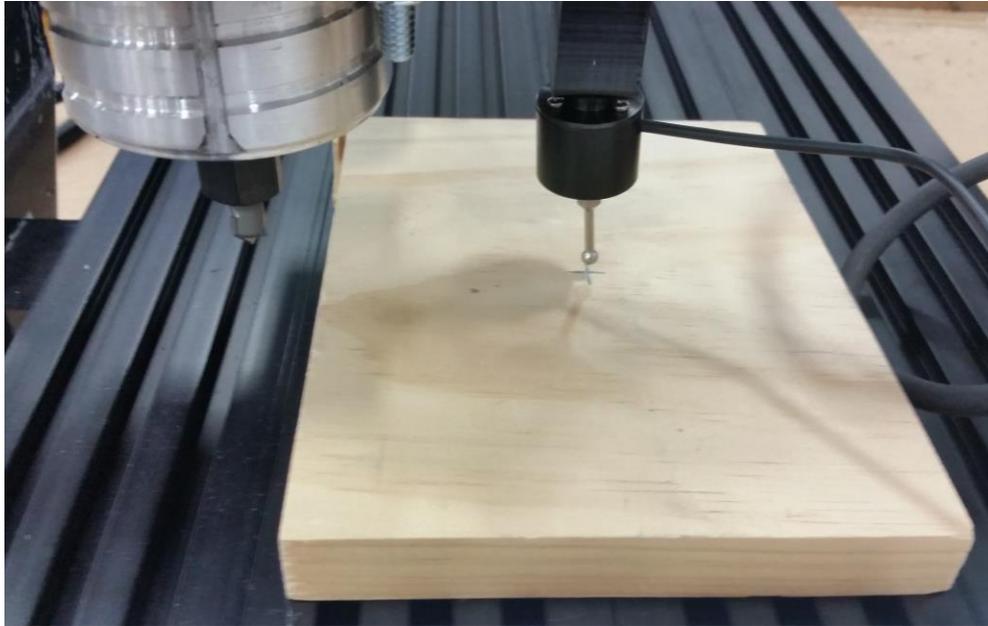
The distance between the probe and the center of the router is the bit offset. Only the X and Y values need to be set. The difference in height (the Z value) between the probe and the router is irrelevant. However, the Z=0 setting must be high enough to allow the probe tip to clear the highest point on the material. If a router bit is installed, the probe tip must also extend below the tip of the router bit. In order to find the correct values to use, you must first find and mark the center of a piece of material.

Follow these simple steps

1. Cut a piece of scrap material to a true rectangle. Square corners will ensure an accurate center in later steps.
2. Use a straight edge to draw diagonal lines from corner to corner to mark the center of the material.
3. If using clamps, place them on the corners of the material, where the probe will not come in contact with the clamps. If the material is small, you may want to use screws to hold it to your sacrificial piece.
4. Install a V bit in the router. The sharp point makes it easier to place the bit at the center of the material.
5. Turn on the controller and position the bit near the center point marked in step 2.
6. Turn off the controller. You can now position the bit exactly over the center point by turning the axis screw rods by hand. This will also reset the X, Y, and Z values to 0.
7. Turn on the controller.
8. Adjust the Z position to allow the Probe Tip to clear the highest point on the material by about 1 inch.
9. Make sure the controller is ON. With the controller ON, install the probe in the holder (The holder is just to the right of the router.). Plug in the cable to the front of the controller, not the pendant/LCD.
10. Move the probe tip to the approximate center of the material.

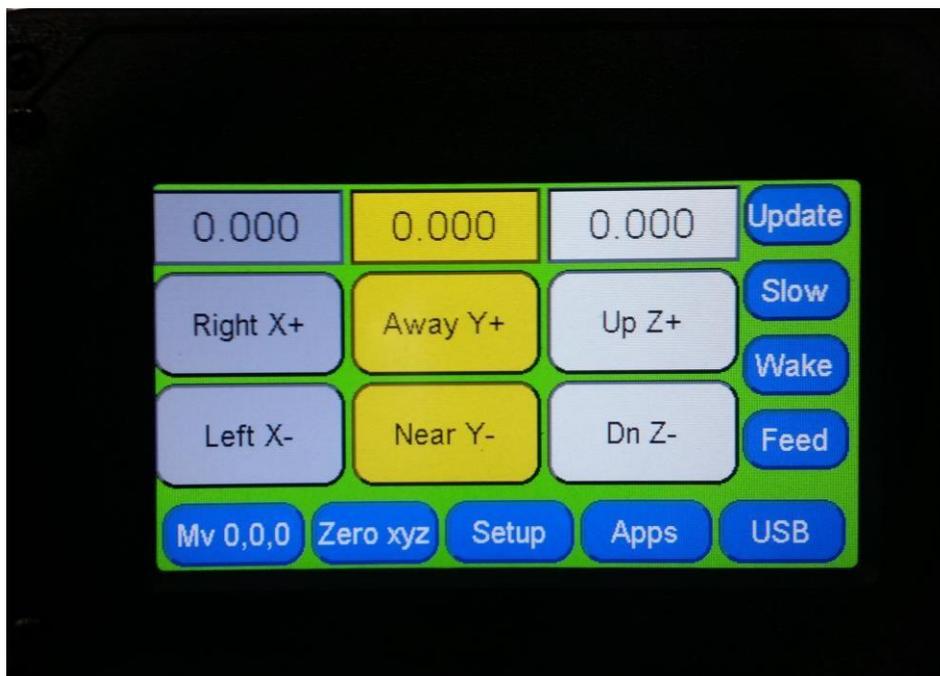


11. On the pendant/LCD screen, press the Apps icon. Open the Center Finder and select Find Both X & Y to allow the probe to find the center of the material.
12. When the operation is finished, ensure that the tip of the Touch Probe is over the center of the material.



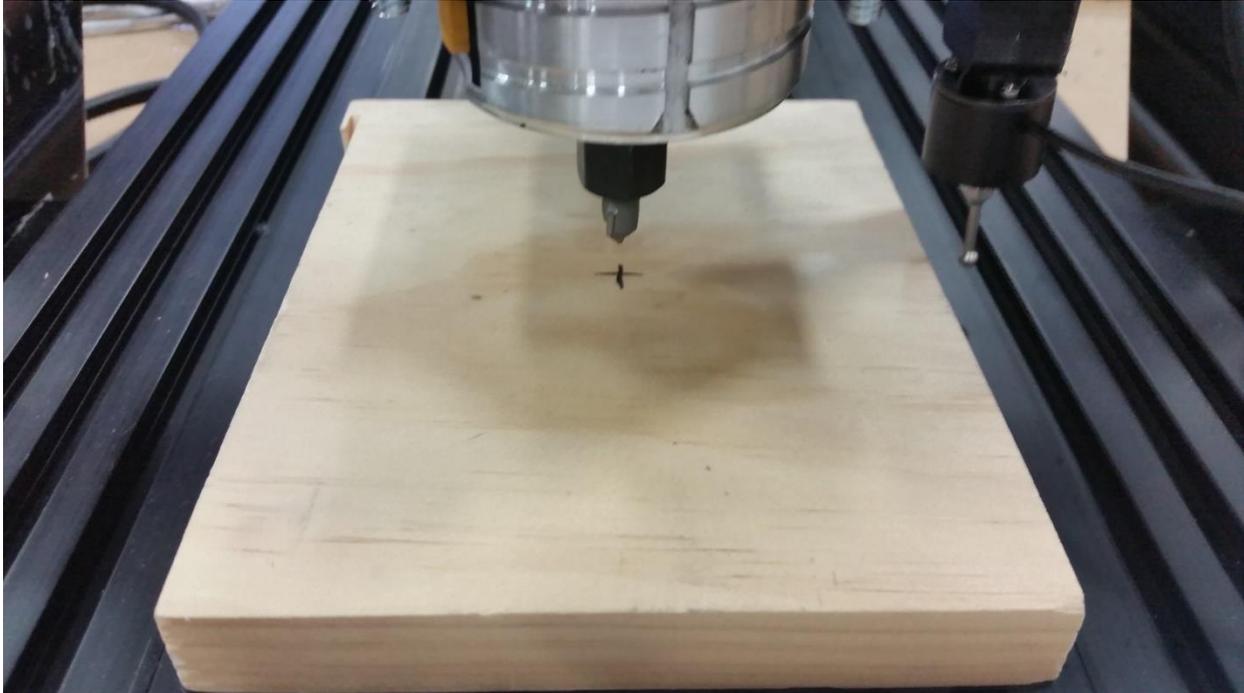
Using the Center Finder function

13. Press the “Zero xyz” button on the pendant/LCD to make the router’s current position read as X, Y & Z = 0.



Zeroing the router position

14. Move the Router so the bit is directly above the marked center of the material.

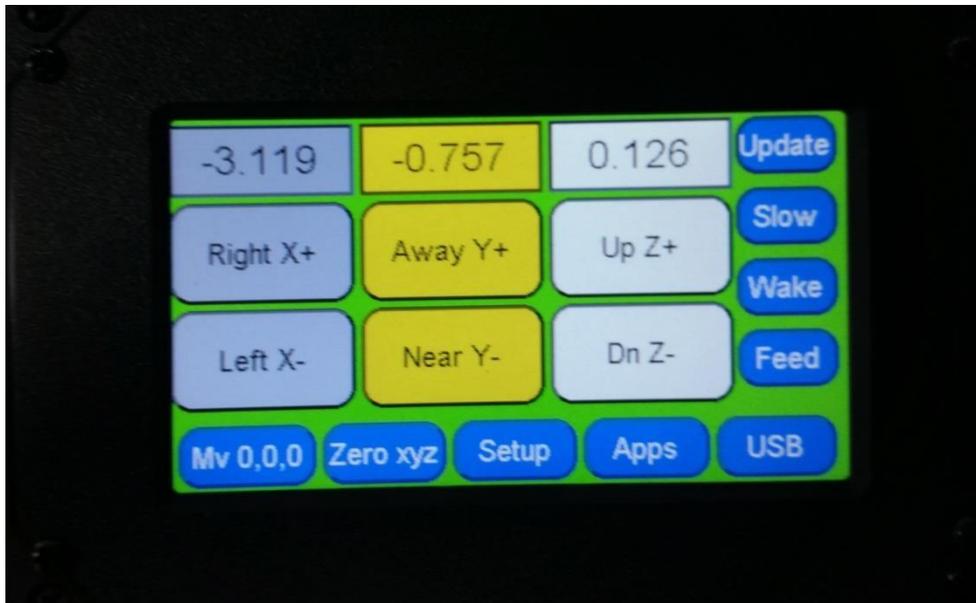


15. Record the new position of the router. Due to the location of the Attachment Arm in relation to the router, the X and Y values should be made positive. These X and Y values are the Bit Offset X and Bit Offset Y values, respectively.

NOTE: YOUR X AND Y VALUES MAY BE DIFFERENT FROM THOSE SHOWN IN THIS EXAMPLE PICTURE. USE ONLY THE VALUES FOR X AND Y SHOWN ON YOUR LCD TOUCH-SCREEN PENDANT.

Record your values for future reference.

X=+ _____ Y=+ _____



Enter these values to the Probe to Bit Offset X and Probe to Bit Offset Y.



Your values that you get should be close to the following values. Due to variances in plastic thickness, your numbers may not be these exactly.

Piranha XL

- Probe to Bit Offset X ~3.1
- Probe to Bit Offset Y ~0.75 Shark HD4
- Probe to Bit Offset X ~3.35
- Probe to Bit Offset Y ~ 0.75

Congratulations! You have finished the center finder setup. To use the center finder for your projects, simply Turn On the Controller, attach the touch probe to the holder and controller, and use the center finder application. When the application is finished, be sure to **REMOVE THE PROBE**. Your router bit (tool) will be located above the center of the material. **MAKE SURE THE PROBE IS STORED IN A SAFE PLACE TO AVOID DAMAGE TO IT.** You can now turn off the controller to easily set the Z axis to the surface of the material, turn the controller on again, and run your tap file.

Troubleshooting

The Touch Probes should consistently work for the Center Finder. In the event that the Touch Probe is not functioning as intended, here are some possible solutions:

- The Touch-Screen Display is displaying this message on startup when using the Touch Probe

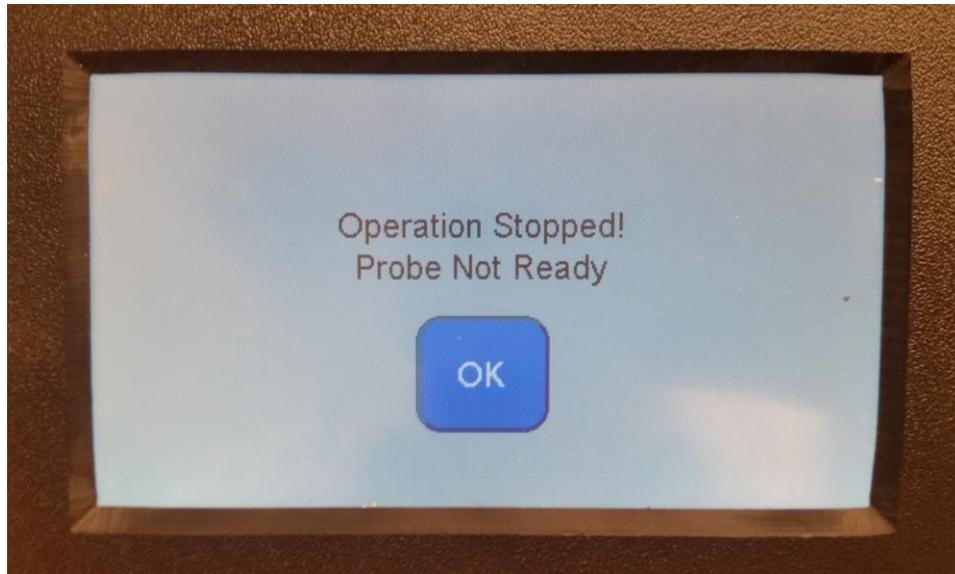


Possible Solution: Turn off your CNC Controller. Ensure that the cable between the LCD Pendant and the CNC Controller is secured on both ends. Ensure that the Touch Probe is not plugged into the CNC Controller. Turn your CNC Controller on. Then plug the probe into the controller, not into the LCD Pendant.

- While running the Center Finder function, the Touch Probe moves with the CNC machine, but it is not registering contact with the material

OR

- The Touch-Screen Display is displaying this message when attempting to run the Center Finder function



Possible Solution: **STOP THE CNC MACHINE.** The tip of the Touch Probe is kept in position by an internal spring that keeps it aligned. The spring may be stuck before the probe is worn in. Remove the Touch Probe from the Attachment Arm. Hold the stainless steel tip of the Touch Probe and push it gently up inside the probe. Let the spring push the tip of the Touch Probe back down. Reattach the Touch Probe to the Attachment arm. **THIS IS THE ONLY TIME YOU SHOULD PUSH ON THE TIP OF THE TOUCH PROBE**

For any other issues you may have, please contact Next Wave Automation Technical Support:

support@nextwaveautomation.com

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