# E-Stop with 4 Button Controller
## Part # MF-ESTOP4

The E-Stop 4 Button controller gives your mill a second more accessible E-Stop as well as the convenience of a coolant control and the ability to start, stop, or pause an operation without having to touch the keyboard or mouse.  This is especially convenient after loading stock to be machined or after changing tools.

The Start, Stop, Pause, and Cool controller is seen by the controller (computer) as an additional keyboard while the E-Stop is completely isolated from the controller and is hard wired directly to the mill in series with the existing E-Stop.

## Installation Instructions

Tools Needed:

| Series I / II | Series 3 |
|---|---|
| Hand Drill | #2 Phillips screw driver |
| Uni-bit or 5/8" dia. hole saw | 1/8" flat blade screw driver |
| #2 Phillips screw driver | Pliers |
| 1/8" flat blade screw driver | |
| Pliers | |

Enclosure Model:

   When you order an Enclosure Model it will include:
- A 6 foot longer E-Stop connection cable.
- 1 - 6 foot USB extension cable.
- 1 - Additional bulkhead gland nut for entering enclosure.

Mounting the controller:

   Bracket Model:
1. Install the 4 Philips flat head #6 X 32 screws through the holes on the bracket and into the threaded holes on the side of the E-Stop Controller.
2. Note! Due to varying production specifications you may need to widen or narrow the lip of the bracket for a snug fit on the coolant tray on your machine.
3. You may want to place a piece of tape over screw head to avoid scratching of the coolant tray.

   Enclosure Model:
1. Due to the many different locations on the enclosure that you can mount the E-Stop we do not include any type of bracketing.
2. Most users have been using the back cover as a template and drilling 4 holes or using heavy duty (3M Red) two sided tape to mount the controller on the enclosure.
3. You may need to drill a hole in the enclosure for the E-Stop wire to enter.

Location:
1. Mount the E-Stop Controller in an appropriate location on the mill that you find desirable. Select such a place that you cannot accidently hit any of the buttons (pic 1-2).
2. If desired on Bracket Models you may install a retention screw through the hole on the lip of the bracket.



Picture 1



Picture 2

Access Hole:
1. Verify that the mill is powered off and ALL power has been removed from the mill.
2. If you have a series 3 mill and want to just replace the bulkhead plate just skip to step 6.
3. On older mills that do not have a bulkhead plate or if you have already used the opening you will need to drill a .600 hole on the side of the cabinet below the main power switch.
4. Make sure to select a location that will not interfere with any existing wires, and is at least 1" from any other wall in the cabinet so that you will have room to tighten the mounting nut.
5. Make sure to use some type of protection to protect electrical connections from shavings.(Pic 3)
6. If you have a Series 3 mill and you want to replace the plate just remove the original plate and install the supplied replacement pre-drilled plate in its place. (pic 4)
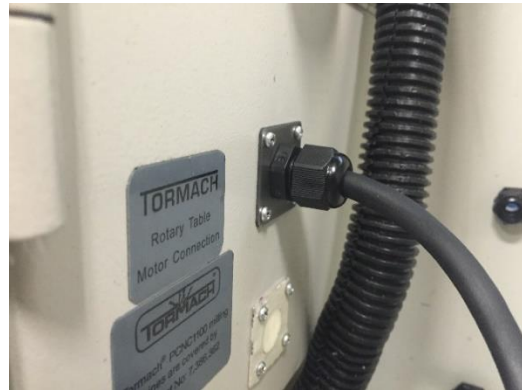


Picture 3



Picture 4

2

Wiring the E-Stop:

1. Remove the right blue wiring cover to gain access to the wire troughs as needed. (Pic 5)
2. Feed the end of the E-Stop wire (Black/White) through the new bulkhead connector or through the hole you just created and install and tighten the nut on the inside of the cabinet. (Pic 6)
3. You may want to loosen the jam nut so that you can easily move the wire back and forth during installation.



Picture 5



Picture 6

4. Remove wire #103 from between the green start switch and the E-stop switch and discard. (Pic 7-8)
5. If your machine has a wire from the main panel marked as #103 connected to the E-stop switch it will need to be moved to the same location on the start switch that you removed the #103 jumper from. See wiring diagram for complete wiring guide. (Pic 8)



Picture 7



Picture 8



Picture 9

6. Attach the new White #103 wire to the open terminal of the Start switch (there should be two #103 terminals at this location on the start switch.
7. Attach the Black #108 wire to the open terminal on the original E-Stop switch. (Pic 10)
8. Route the wires in such a way that they will not interfere with anything or get caught in door hinge.
9. Use supplied Zip Ties to support wire transition from door to case. (Pic 11)
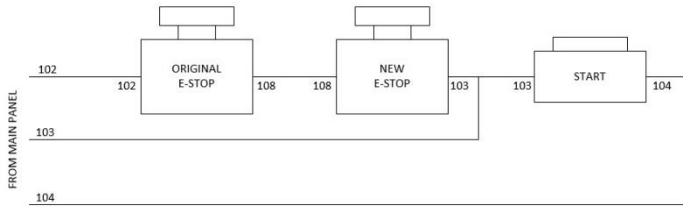


Picture 10



Picture 11

10. Route wires through wiring troughs as possible and replace blue covers.

11. Tighten Jam nut on bulkhead fitting to secure wire from movement.

Double check and test:
1. Make sure that the wiring is connected in the correct order.



2. Close and secure the mills control panel door.
3. Reconnect Power and power on mill with the Main power switch.
4. Release the Main E-Stop switch and press the Remote E-Stop switch in.
5. Press the start button to verify that it is NOT operational.
6. Release the Remote E-Stop switch and press the Main E-Stop switch in.
7. Again, press the start button to verify that it is NOT operational.
8. Release both the Main and Remote E-Stop switches.
9. Press the start button to verify that the mills Machine light illuminates and the mill becomes fully operational.

Connecting the Controller:
1. Route the USB cable in such a way as to not interfere with operation of the mill and its accessories.
2. Plug USB connector into any available USB port on PathPilot® or Mach 3 computer.

# Operation

- Pressing the START button on the controller is the same operation as holding down the <ALT> key on your keyboard and pressing the R key and then letting up on the <ALT> key.
- Pressing the COOL button on the controller is the same operation as holding down the <ALT> key on your keyboard and pressing the F key and then letting up on the <ALT> key.
- Pressing the STOP button on the controller is the same operation as pressing the <ESC> key on your keyboard.
- Pressing the PAUSE button on the controller is the same operation as pressing the <SPACEBAR> key on your keyboard.
- Some operating systems will not allow the keyboard hotkeys to operate with the CAPS LOCK active.

v.1.2

# Warning!!!

The stop button (small button) on the controller is not to be used to replace your Emergancy Stop.
There is no physical power disconnect as with the Emergency Stop button.

Any machine tool is potentially dangerous. The automation inherent in a CNC machine presents added risk not present in a manual mill.
Safe operation of the machine depends on its proper use and the precautions taken by the operator.
Read and understand your mills manual prior to its use. Only trained personnel with a clear and thorough understanding of its operation and safety requirements should operate any mill.
Millfast accepts no responsibility for machine performance or any damage or injury caused by its use. It is your responsibility to ensure you understand the implications of what you are doing and comply with any legislation and codes of practice applicable to your city, state or nation.

If you have any issues or questions feel free to send us an email at info@millfastproducts.com

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