

# Timer Board for Gmfc modification kit for Cnc611

User manual revision: 1.0

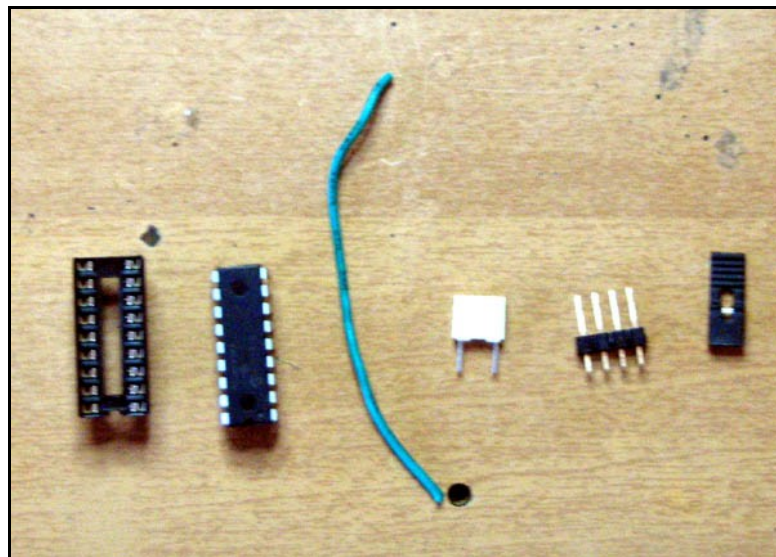
This modification kit for cnc611 enables board to output a square wave timer onto printer port pin 10, to get compatibility with Gmfc. Gmfc is the most popular software for hot wire foam cutting with a home build CNC machine. Gmfc needs this timer on pin 10 to work properly.

Pin 10 timer is nothing else than a square wave generator, whose frequency can be set to 2kHz (which gives a period of 500 $\mu$ s) or 4kHz (which gives a period of 250  $\mu$ s). You may also disconnect timer generator, restoring generic digital input function to printer port pin 10.

If you receive this kit already assembled onto board, you may ignore paragraph “Parts list” and “Assembly notes” and go directly to “Setting frequency”, on page 3.

## Parts list

| Quantity | Description   |
|----------|---|
| 1        | Integrated circuit DIL-18 Socket                                  |
| 1        | PIC16F628A integrated circuit, pre-programmed with timer function |
| 1        | Jumper wire, isolated.  |
| 1        | 100nF capacitor   |
| 1        | Pin-Header 0,100” spacing, 4 ways                                 |
| 1        | Jumper  |



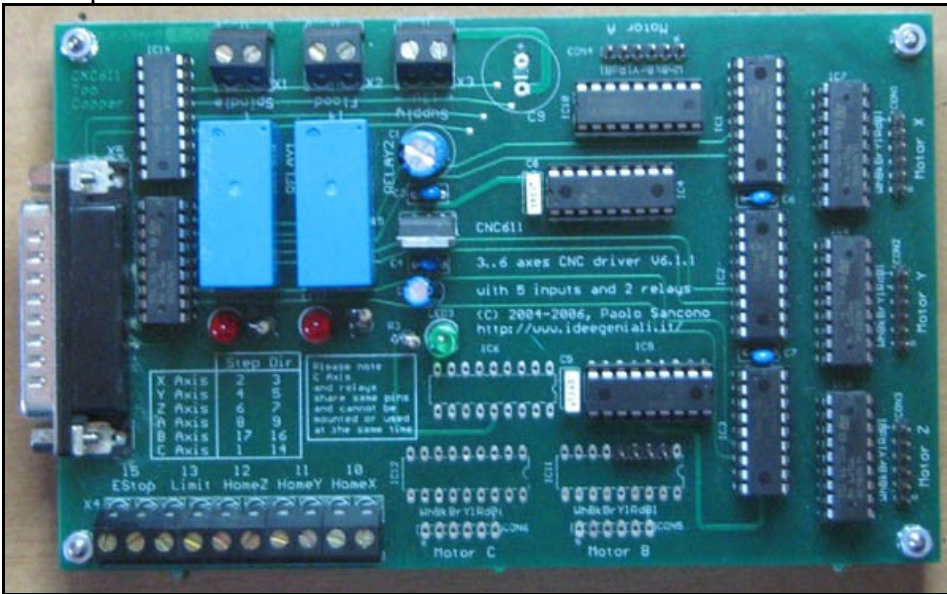
*Parts provided with the modification kit*

## Assembly notes

Integrated circuit socket is to be mounted onto IC5 position on cnc611 board. Please note the reference U shown on board serigraph overlay, which must match the reference U on the socket. When inserting the integrated circuit chip into its socket, again please match the U reference on the socket/serigraph overlay, with the U reference on the chip, maintain correct alignment and don't put the chip 180° degree rotated. It will get damaged at first power-up if doing so.

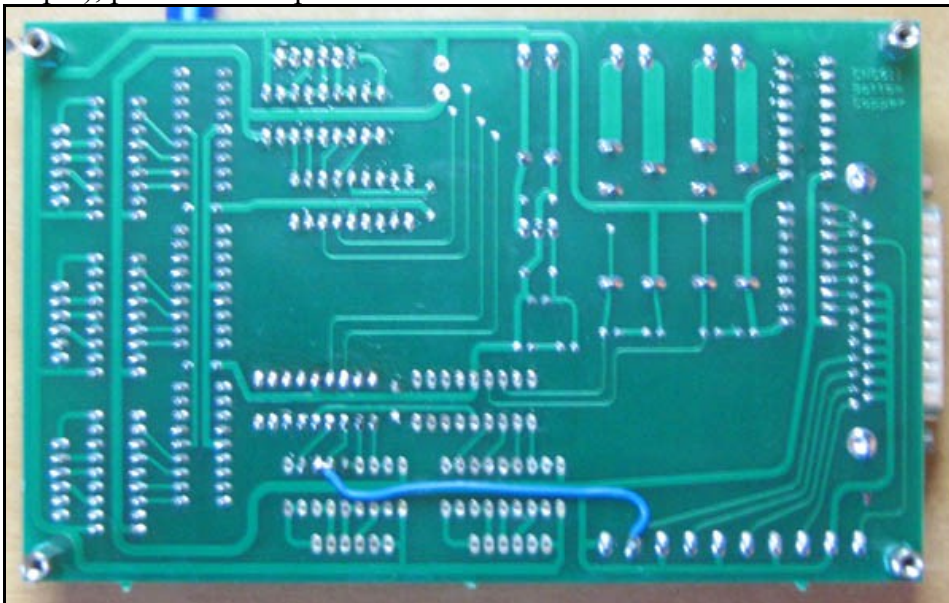
Please mount 100nF capacitor onto C5 position on cnc611 board.

Please mount 4 ways pin-header on the pads shown in the following image, on IC11 position on cnc611 board. Pads of IC11 involved by the assembled pin-header are number 2,3,4,5, start counting "1" from the top right corner, please look at the picture.



*A 4 axis cnc611 board has been upgraded to timer support with modification parts: IC5, C5. Please note the position of 4 ways pin-header in selected pads of IC11, and match carefully.*

Lastly, complete assembly on the bottom (traces) side of the board, with a jumper wire from central/middle pins of 4 ways pin header, to the point of input of pin 10 signal (this is two way screw terminal, please choose pin 10 input and not GND input), please look at picture.



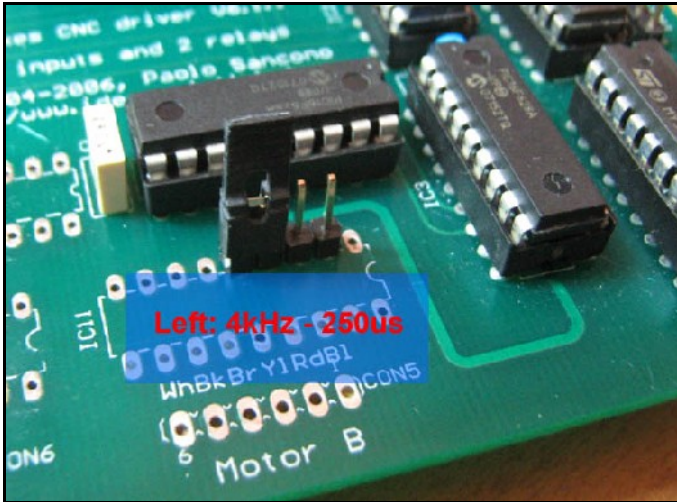
*Jumper wire goes from middle pins on 4 ways header, to pin 10 signal of printer port, found on the pad of two ways screw terminal shown.*

Success! You have completed assembly, go on next paragraph and see how to use the board with Gmfc!

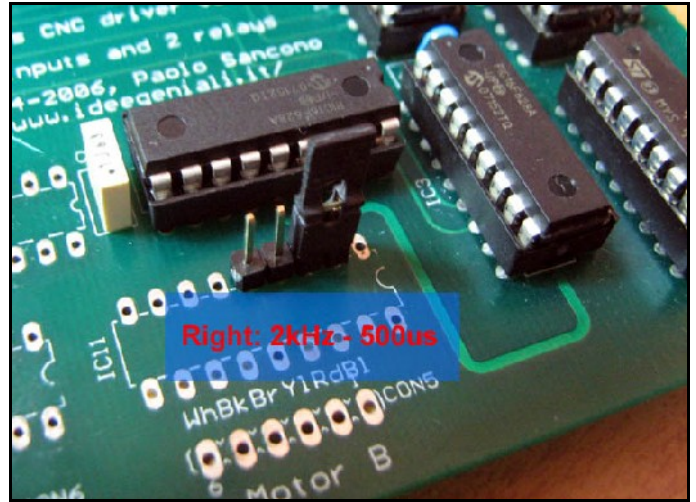


## Setting frequency

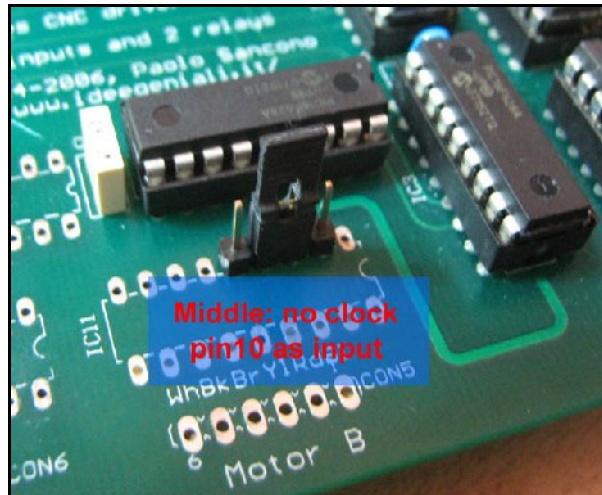
You may select square wave frequency among 4kHz or 2kHz. It's also possible to disconnect the square wave generator from pin 10, to restore generic digital input functionality for the pin. This is useful if you're not using gmfc, but another cnc control software like mach3 or emc2, and you use pin 10 for other functions.



*Jumper on left position : 4kHz.*



*Jumper on right position : 2 kHz.*



*Jumper in middle position : square wave generator disconnected.  
pin 10 can be used as a generic printer port input pin.*

Please read gmfc user manual or online help system to check a 500 $\mu$ s or 250 $\mu$ s time period reading, and confirm proper operations of timer. After that, go, have fun and cut some foamies, fly them and send me pictures/videos of working CNC machine!