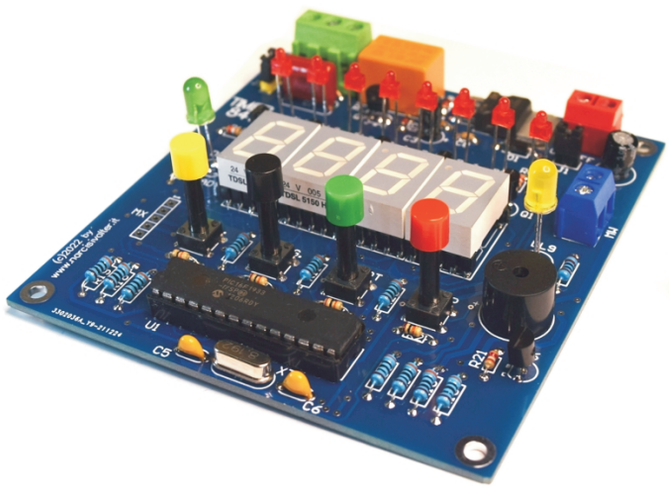
OWNER's MANUAL

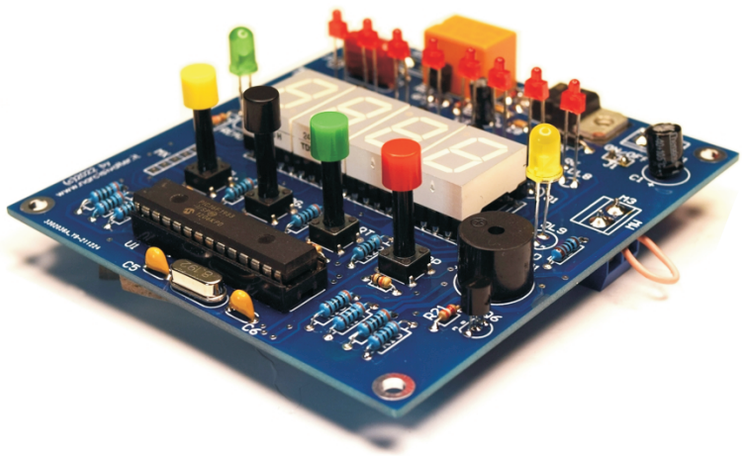
TIMER 841

T-841
Programmable Timer with 8 memories for Multipurpose or Exposure Box

T-841 FEATURES

- Input Voltage: **12Vdc** (± 5%).
- Management with **Microcontroller** (Microchip PIC16F1933 DIP28).
- **Quartz** accuracy.
- **Count-Down** Timer.
- **Easy** to use.
- **4** control buttons: **TIME SELECT. PROG. START** and **STOP**.
- **8 programmable Times** from **1s**ec. to **59m**in. **59s**ec.
- **Buzzer on-board** for signalling counting end and for audio scanning of the seconds.
- The time and setting are **stored** in the controller's memory and retrieved during Power ON.
- **Yellow LED** for showing **LOAD ON**.
- **Green LED** for showing the Timer is **Ready**.
- **8 Red LEDs** to indicated the selected Time.
- **3A/250V Relay output** and 3 way screw Terminal Block (**NC - Com - NO**).
- Displaying: **4 x Display** 7-segment (0.59" - 13 mm.).
- Can be used like a **multipurpose** timer, into an **Exposure light box**, **Bromograph**, etc.
- Professional **PCB** with silkscreen (double-sided).
- Board dimensions (mm.): **89 x 95**.





USER's GUIDE for TIMER T-841

INTRODUCTION

The **Timer 841 manage times from 1 SECOND** up to **60 MINUTES** (**mm:ss** format) and the values to be programmed are 1 SECOND steps.

After Power ON, the **Timer** displays the last time used by user and by pressing the **START** button, the relay is activated (**Yellow LED** is ON) and the Timer begins to count down. At the end of programmed time, the value "00:00" appears on the display, the relay is deactivated, the **Yellow LED** turn OFF and the buzzer emits 3 beeps, then the Timer is Ready (**green LED** is ON).

If there is a **black out** (and a battery has not been connected), the Timer switches off completely (the relay deactivates): when the AC main is restored, the Timer displays the last time used by the user and it is ready to be activated again by pressing the **START** button.

DEFAULT VALUE

When Power ON, the display always shows **the last time used** by the user (the lighting of one of the **8 red LEDs** indicates which time is shown on the display): if the Timer never been used, after first Power ON the Timer automatically sets all times to "02:00" (Relay active for 2 minutes).

THE LEDs OF TIMER

There are 10 LEDs in the Timer:

- **8 RED LEDs -** The red LEDs turn on one at time and indicates the number of the that shown in the Display.
- **YELLOW LED -** The yellow LED is ON only when the relay is activated.
- **GREEN LED -** The GREEN LED is ON when the Timer is ready to be activated.

HOW TO SET THE AUDIO SCAN of SECONDS

When the Audio Scan of Seconds is enabled, the buzzer emits a short acoustic signal every second (the classic "toc").

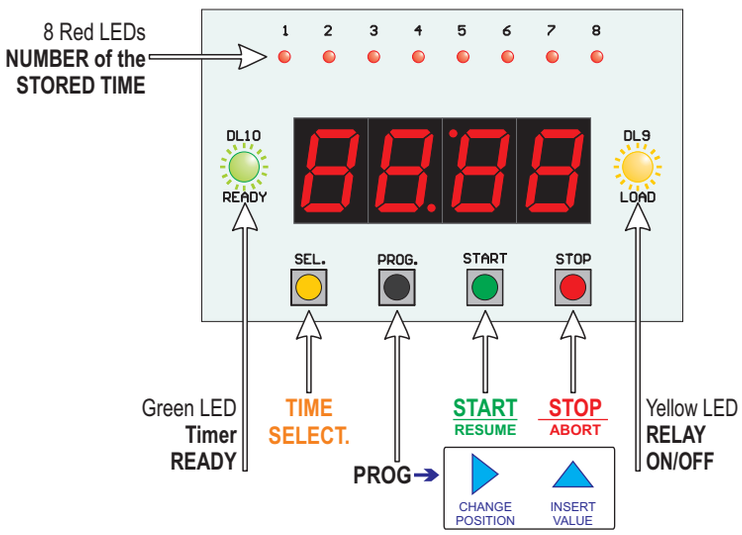
NOTE - To enable or disable the AUDIO SCAN OF SECONDS, the timer must not have been activated.

To enable the AUDIO SCAN, press and hold the **STOP** button for at least 2 seconds, until the display shows the digit "0" or "1", then release the button. Repeat the same procedure to disable the AUDIO SCAN, and so on.

0 = Audio scan **DISABLED**

1 = Audio scan **ENABLED**

HOW TO USE THE TIMER



START / RESUME

This button is for starting the Timer. The Timer can ONLY be started ONLY if the **green LED** is ON (**green LED ON** = Timer is Ready). When the **START** button is pressed, the Timer activates the relay and starts the countdown starting from the value shown in the display. During the countdown, the **yellow LED** is ON to indicate that the relay is activated (**yellow LED ON** = Relay activated).

STOP / ABORT

This button, pressed once, set the **Timer** in PAUSE and deactivates the relay (**yellow LED** turn OFF). To resume the countdown (and reactivate the relay), press the **START** button otherwise, a second press of the **STOP** button, stops and definitively abort the countdown (**green LED ON**).

*NOTE - During a counting pause (after pressing the **STOP** button once), the **RED DOT LOW** in the display is lit.*

TIME SELECT.

Button for selecting ONE of the 8 times in memory. Each time the button is pressed, the display will show ONE of the 8 times programmed by the user (the corresponding number will be indicated by the lighting of ONE of the **8 red LEDs**). Once you have reached time number 8, by pressing the button again, you will restart from time number 1 and so on. The time currently shown on the display (and indicates from the corresponding **red LED ON**) will be that used by the Timer after pressing the **START** button.

PROG *(Programming)*

Press this button to enter the **PROGRAMMING** mode.
The second time you press the **PROG** button, you exit the **PROGRAMMING** mode.

NOTE - To enter in the PROGRAMMING mode, the timer must not have been activated.

During the programming of a time, ONLY one digit at a time lights up on the display (i.e. the one selected where the value to be entered): the remaining digits on the display are "masked" and their positions are indicated by lighting of underscores.

- **Select the POSITION on the DISPLAY and INSERT VALUE**
  The **START** and **STOP** buttons have a double function: when you enter the **PROGRAMMING mode**, these buttons allow you to choose a single digit of display and the value to be entered on the selected digit as described below:

  ○ Button ▶ (**START**): each time this button is pressed, a digit lights up one at time, from left to right. The lit digit is the one in which the value to be programmed is entered. After the fourth digit, a further press of the button, restarts the sequence from the first digit and so on.

  ○ Button ▲ (**STOP**): each time this button is pressed, a value (from **0** to **9**) is entered on the selected digit: when the value is **9**, by pressing the button again, it restarts from **0** and so on.

The DISPLAY and the STATUS LEDs

During the countdown, one or two SEPARATION DOTS (**:**) may be lit on the display. In addition, the **green** and **yellow** LEDs light up to indicate different situations. See the following list to know all these possible situations.

STEADY LIT DOTS (Timer Ready)

The steady lit dots on the Display indicates that the Timer is ready and can be start by pressing the **START** button or to enter in the Programming mode by pressing the **PROG** button and again, to choose the desideres time by pressing the **TIME SELECT.** button.
The **green LED ON** indicates that the Timer is ready for all there operations.

BOTH DOTS FLASHING (Countdown in progress)

The both dots flashing indicated that the countdown is in progress (**yellow LED ON**). The countdown could be paused (and relay deactivated) by pressing the **STOP** button.

LOW DOT ON (Timer Paused)

The low dot on indicates that the countdown is paused after pressing the **STOP** button (the **yellow LED** turn OFF and relay deactivated).

By pressing the **START** button during a PAUSE, the countdown will resume otherwise, by pressing again the **STOP** button, the countdown will definitely aborted and the Timer will be ready for a new countdown (**green LED ON**).

HIGH DOT ON (M3-MW socket open)

The high dot will turn ON when the contact of actuator connected to terminal block **M3** (**MW**) are open. On **M3** srew terminal board, for example, the "clean" contacts of a microswitch that detects the opening of any safety door (such as that of a bromograph) can be connected. In other words, the contacts on the **M3** terminal block must always be closed for the countdown (and the Timer) to work. Whenever the contacts on the **M3** terminal board are open, the countdown stops (**yellow LED** and **green LED** off). If you do not want to manage the **M3** terminal block, you need to short-circuit it with a wire jumper.

UNDERSCORES ON (Programming)

To enter in the PROGRAMMING MODE, press the **PROG** button and the display will show the underscores as shown in the figure.

Press one o more time the button ▶ (START) to select the position where enter the value to be programmed.

Press one o more time the button ▲ (STOP) to enter a value from **0** to **9** in the selected position.

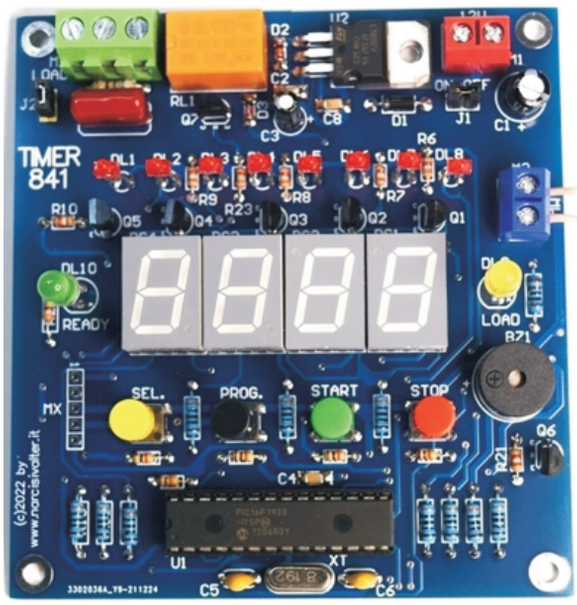
NOTE - During PROGRAMMING MODE, the green LED is ON.

To exit the PROGRAMMING MODE, press again the **PROG** button so the new time **will be stored** in the memory of the Timer.

BOARD VERSION FOR INSTALLING TO THE WALL (T841-A)

Note that for the installation of the **T841-A** board to the wall or at the bottom of a box, all the components must be mounted on the TOP SIDE, as shown in the following photo:

T841-A



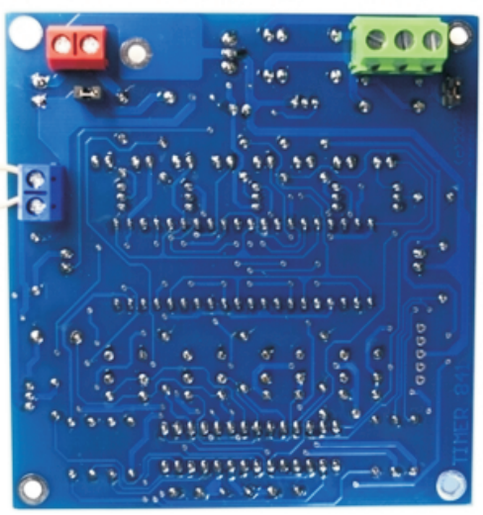
BOARD VERSION FOR INSTALLING ON A PANEL (T841-S)

If you prefer to install the board on a panel (after having made the holes for the buttons, those for the LEDs and the opening for the display), it is necessary to create the board **T841-S** version: in this version of board, the 3 terminal blocks M1-M2-M3 and connectors J1 and J2 are soldered to the bottom side so to allow easy access to these components once the board is fixed on the panel (see following photos). For this board version is necessary to use a small red trasparent plexiglass screen (thickness 3 mm.) to apply on the display.

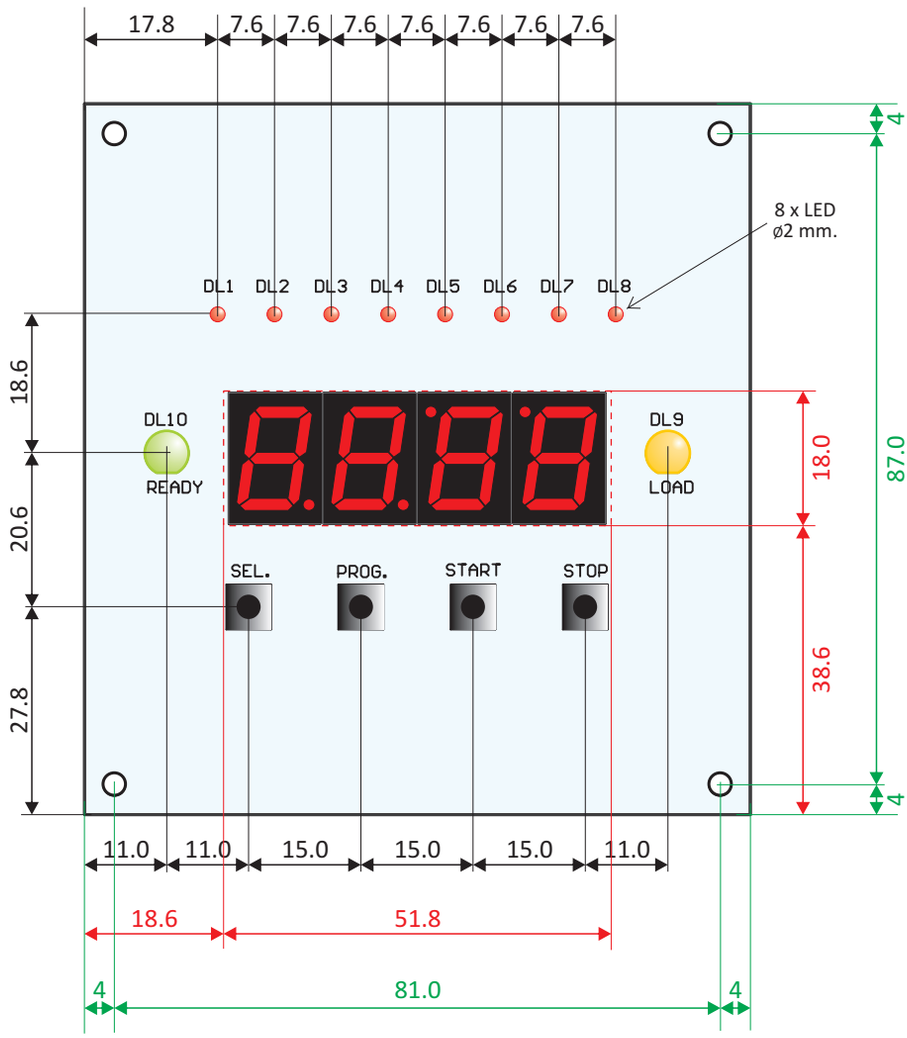
T841-S

TOP SIDE

BOTTOM SIDE

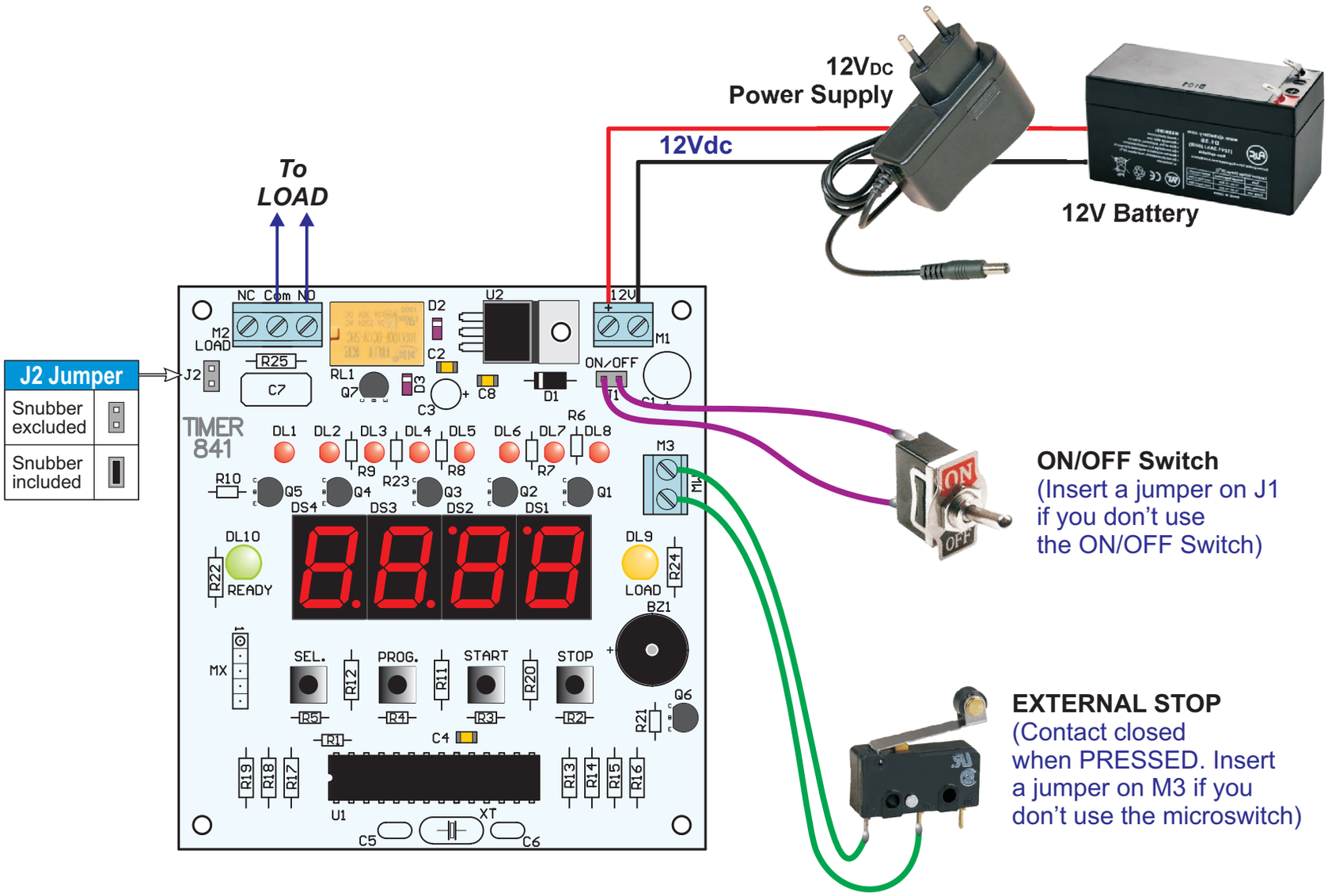


DIMENSIONS and HOLES (DIMENSIONI e FORI)

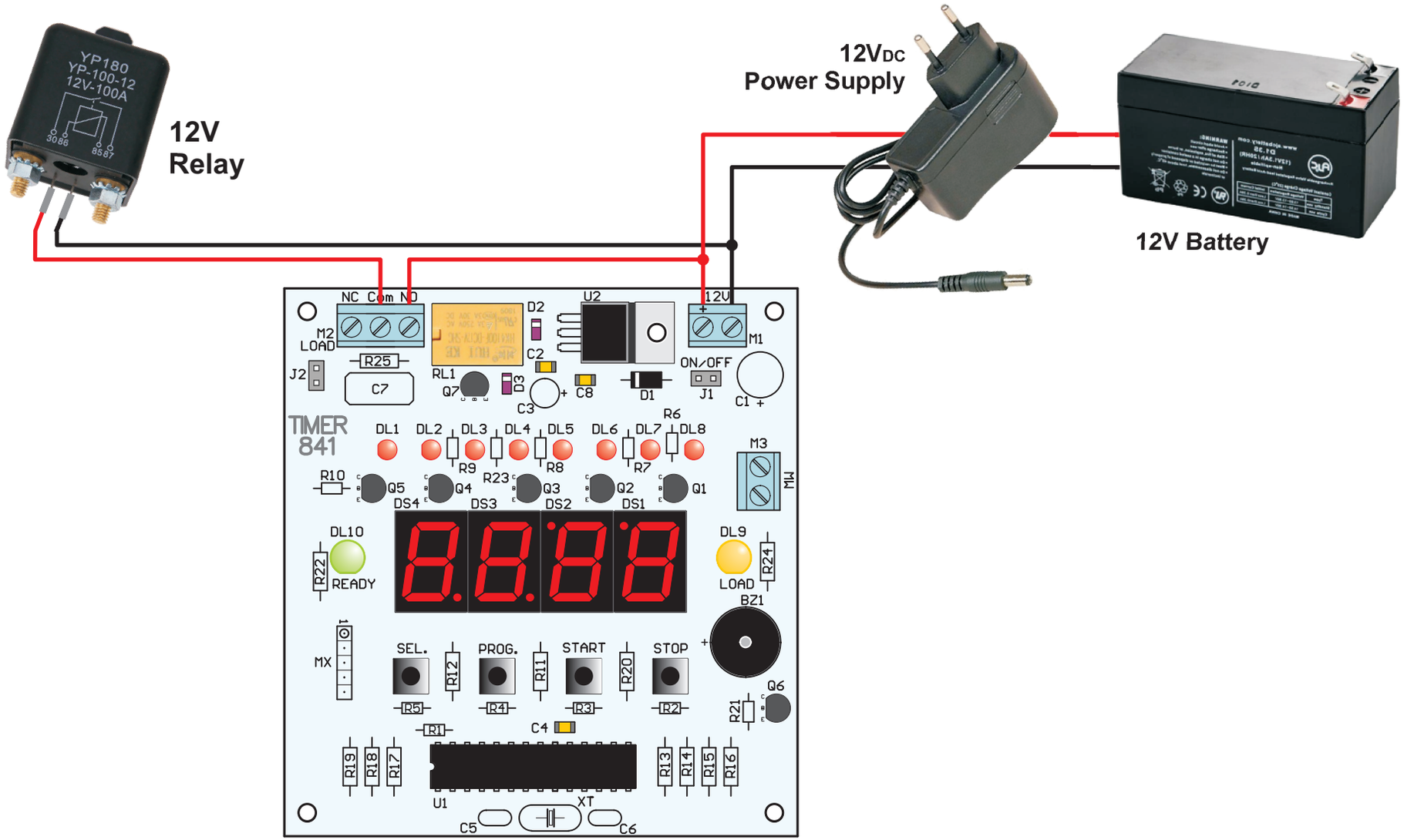


Dimensioni scheda (PCB dimensions): **89 x 95 mm**.
DL9-DL10: ø**3** or ø**5 mm**.
DL1-DL8: ø**2 mm**.

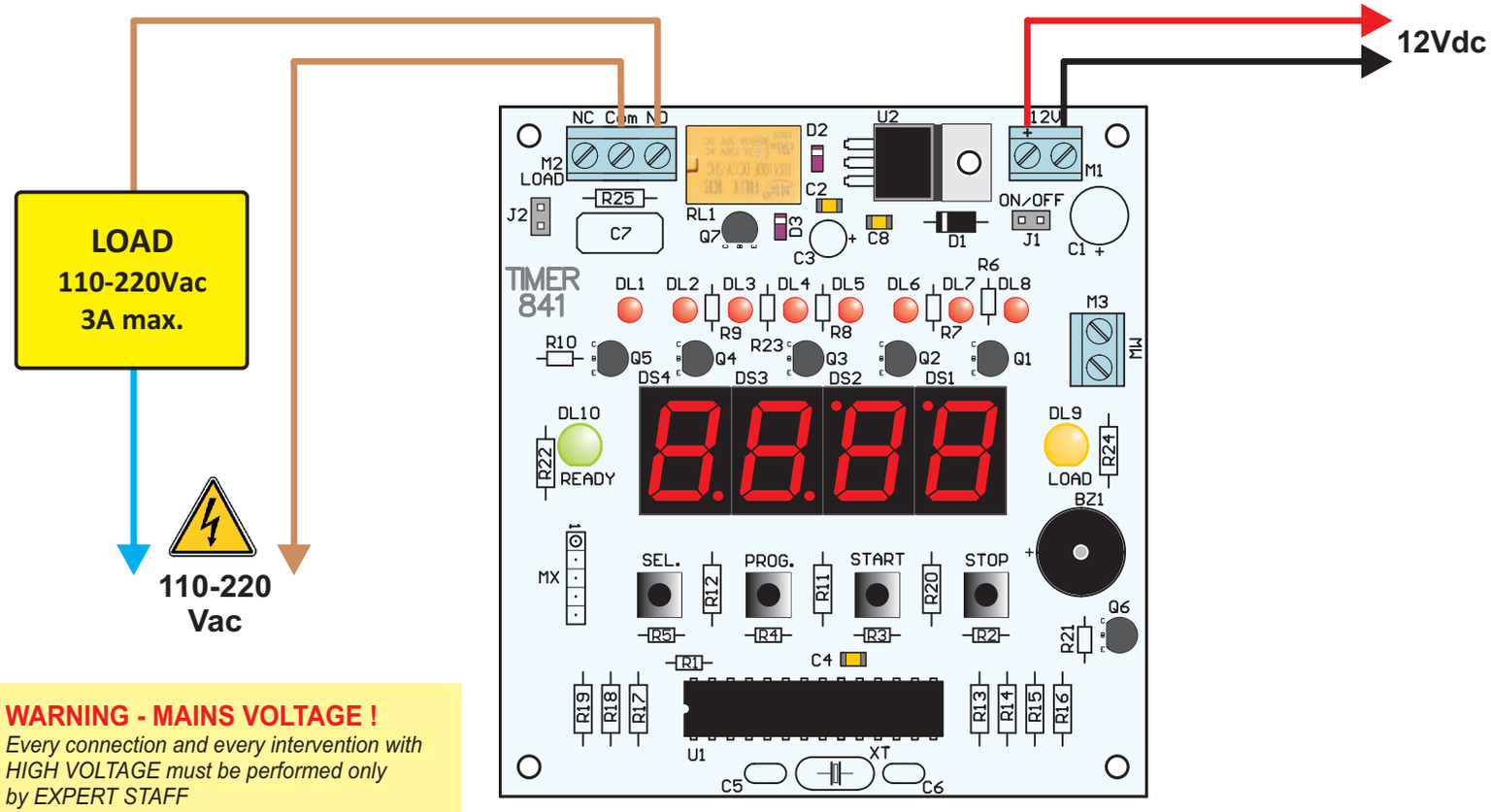
WIRING (Timer 841-A)



HOW TO CONNECT THE EXTERNAL RELAY

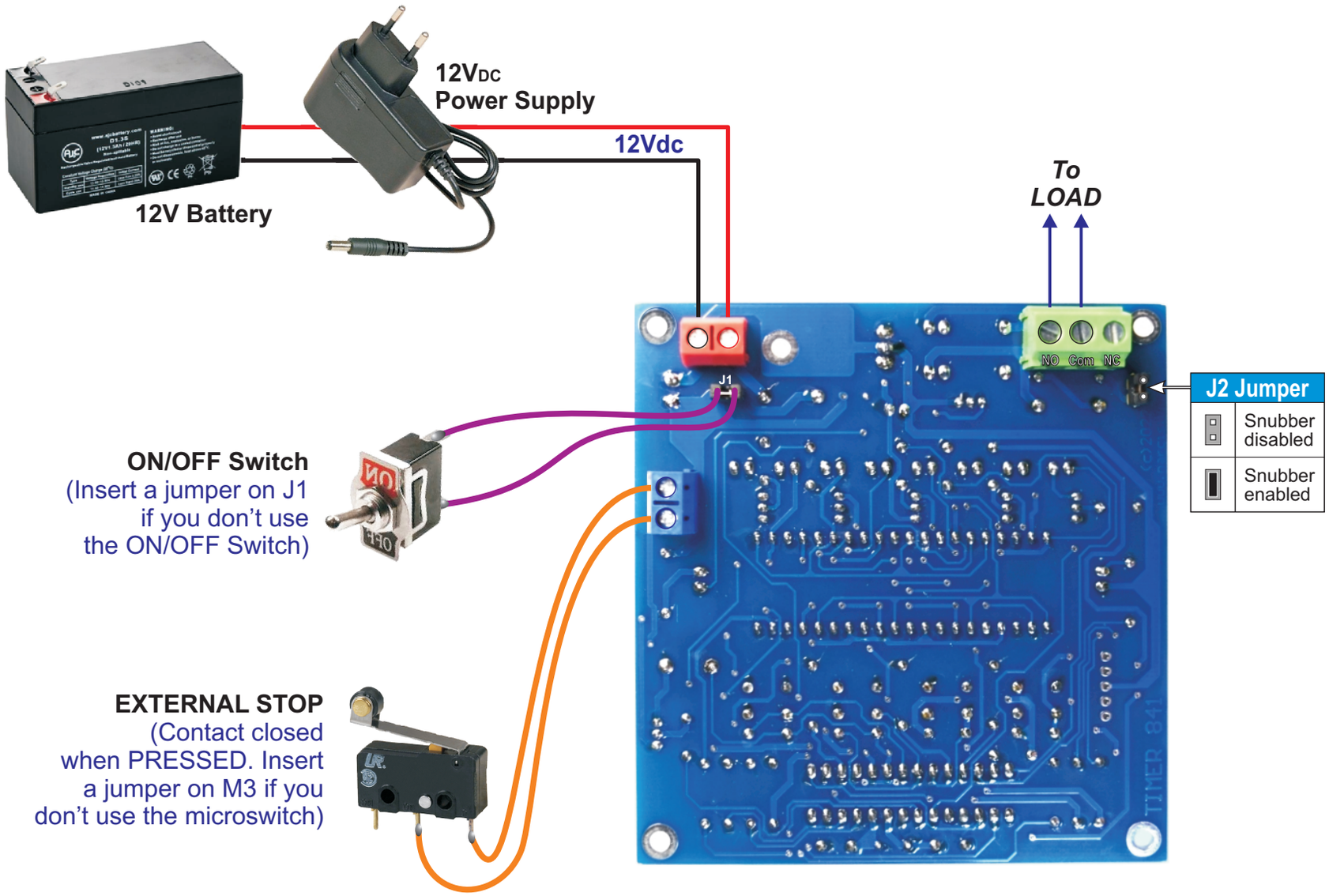


SAMPLE OF HIGH VOLTAGE CONNECTION (110-220 Vac)



WARNING - MAINS VOLTAGE !
Every connection and every intervention with HIGH VOLTAGE must be performed only by EXPERT STAFF

WIRING (Timer 841-S)



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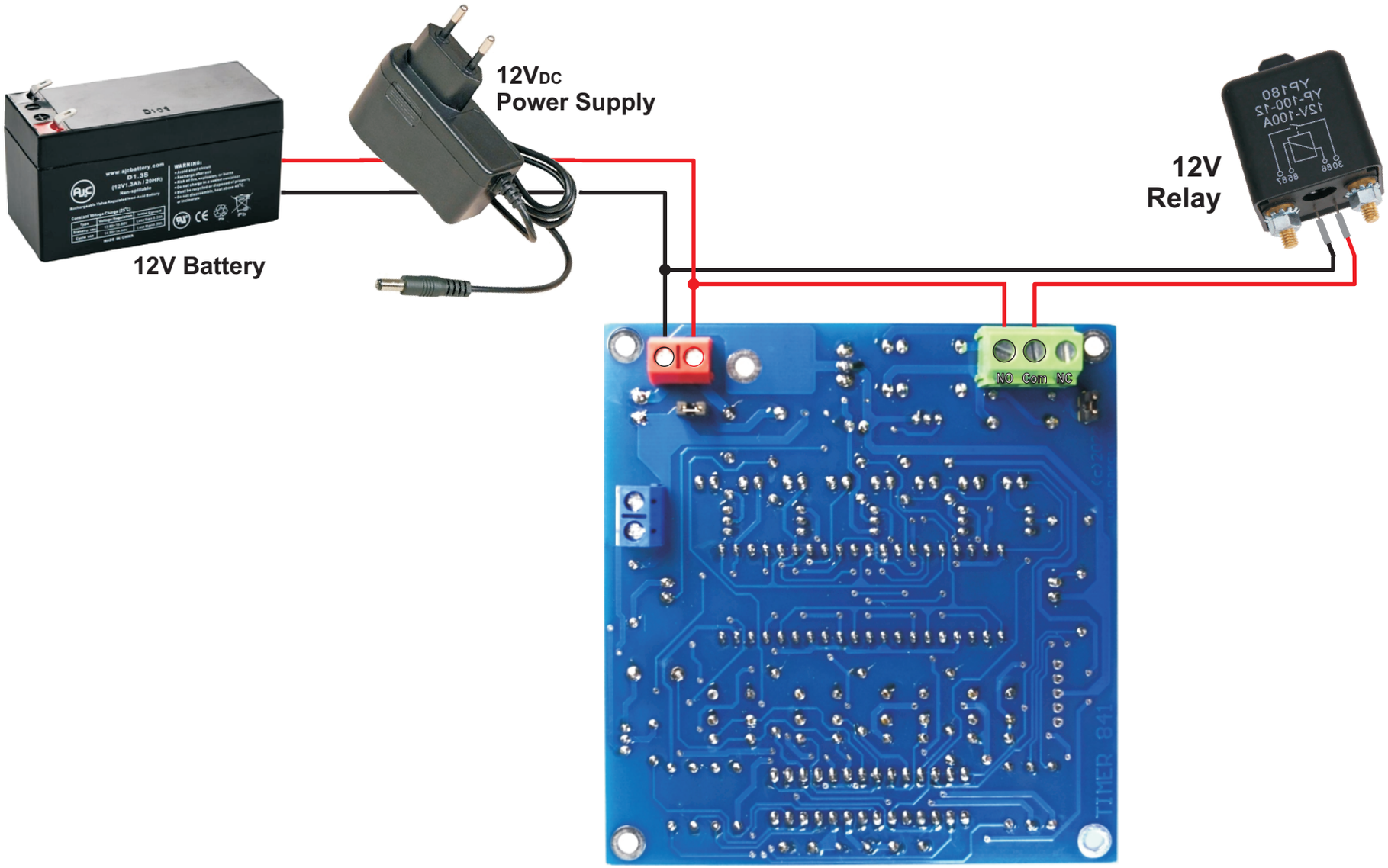

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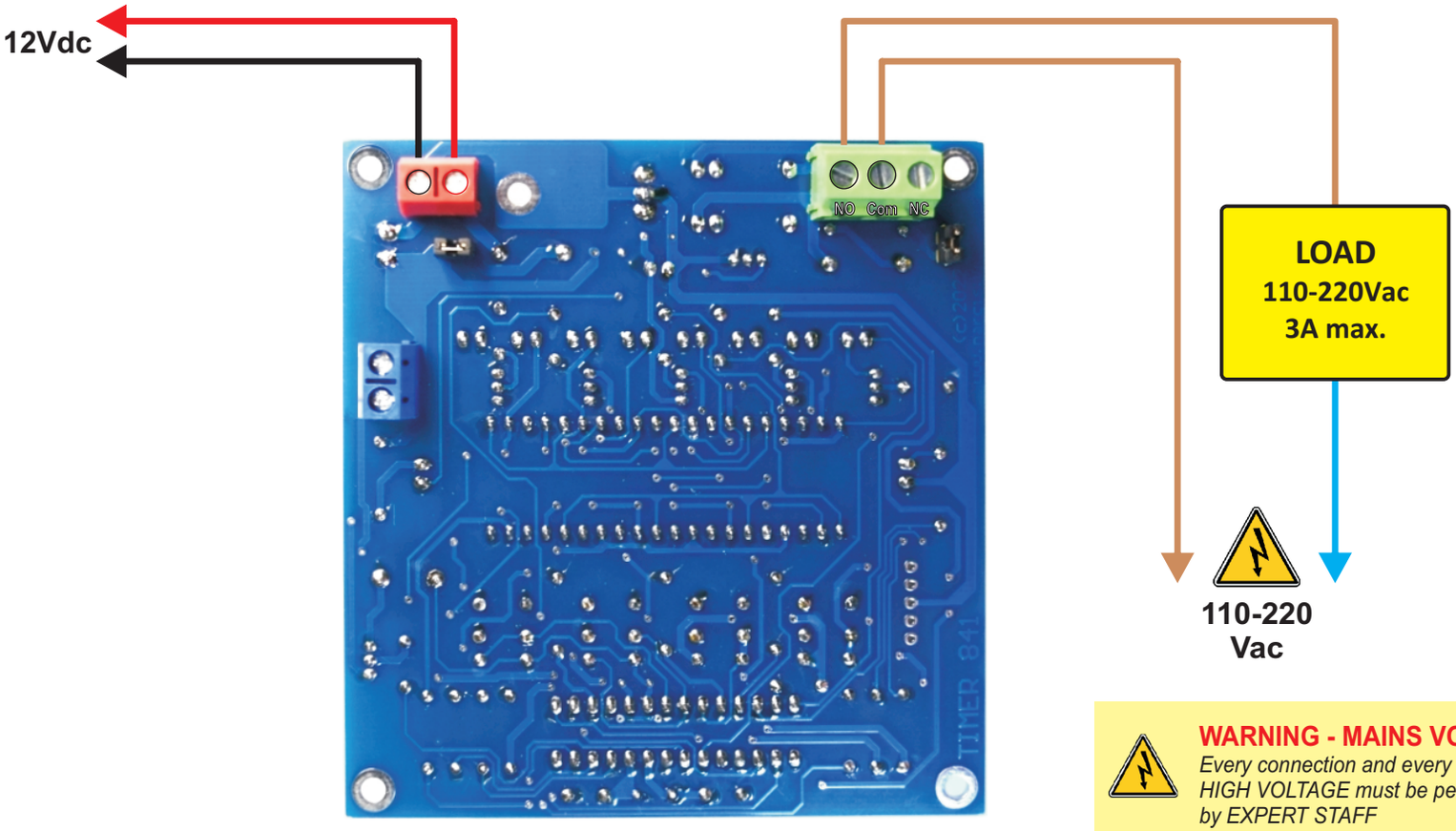

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