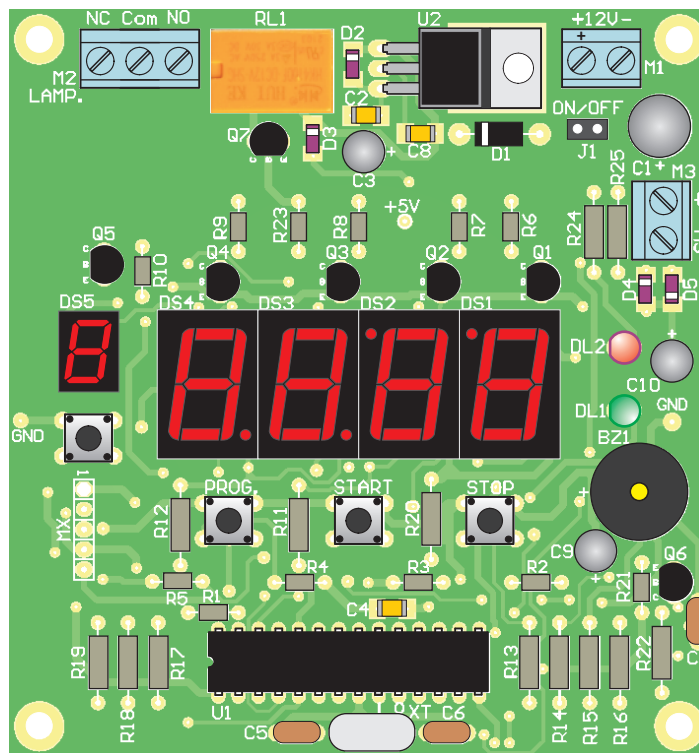




OWNER'S MANUAL

MT-10 MULTIPURPOSE TIMER



Board MT-10 Programmable Multipurpose Timer *with 10 memories*

TIMER MT-10 BOARD / SCHEDA per TIMER MT-10

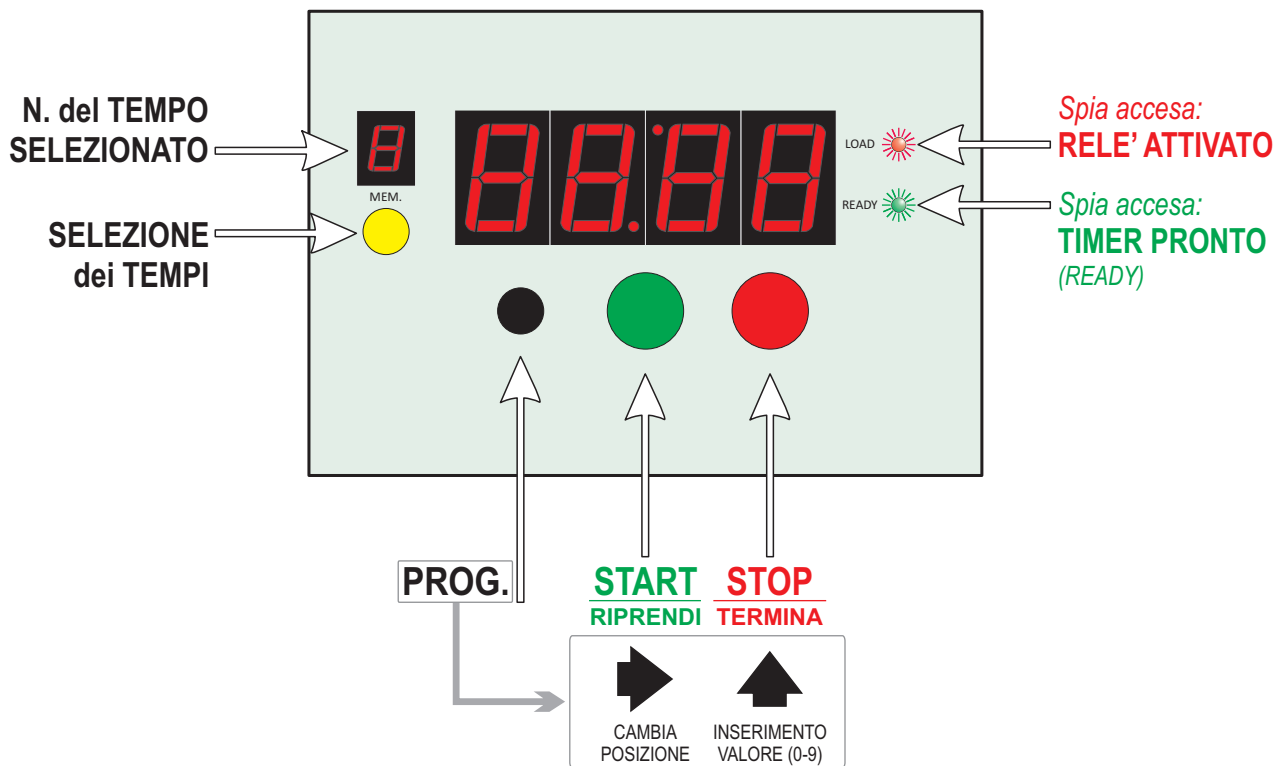
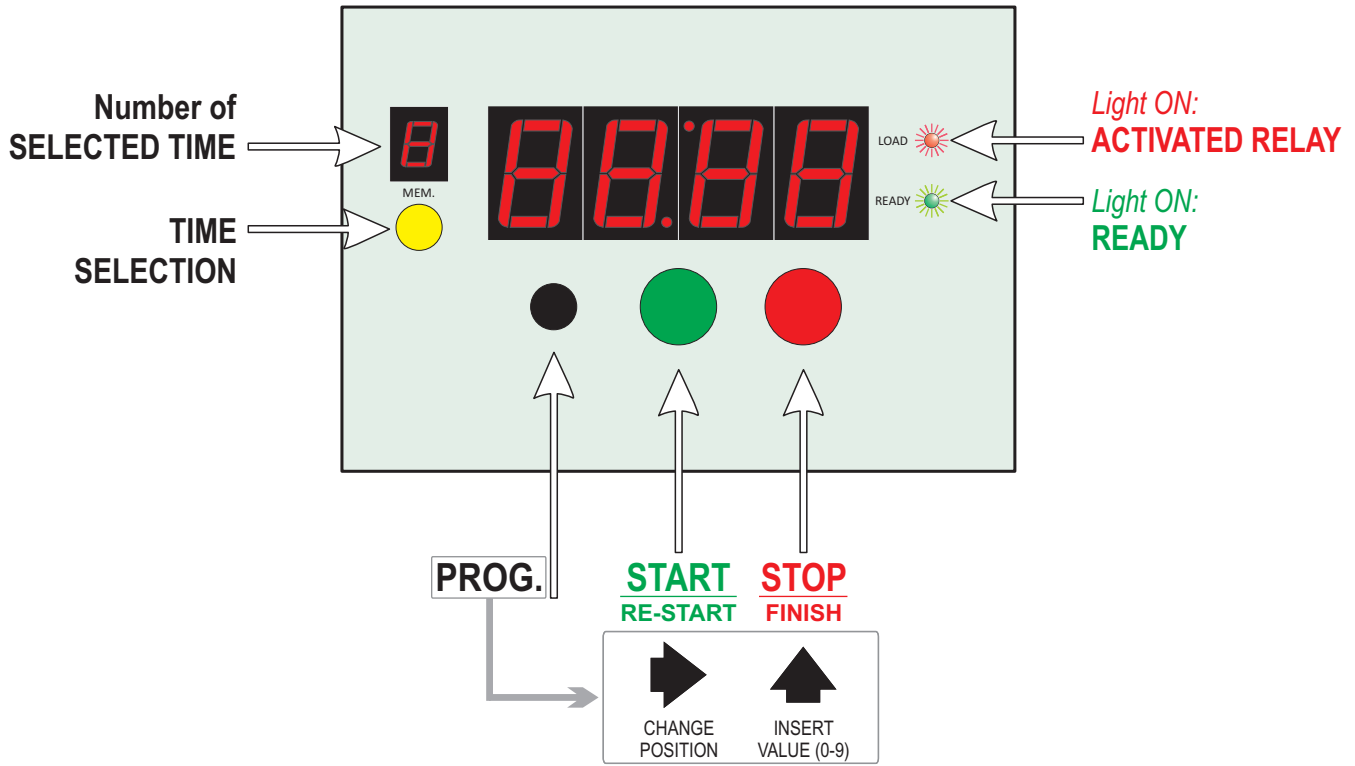
FEATURES

- Input Voltage: **12Vdc**.
- **Microcontroller**-based management.
- **Quartz** accuracy.
- **CountDown** Timer.
- **Easy** to use.
- **4** command buttons: **MEM. SELECT**, **PROG.**, **START** and **STOP**.
- **10 programmable Times** from **1sec.** to **1 hour (59min. 59sec.)**.
- Input for **Safety Microswitch**.
- **Buzzer** for signalling counting end and for audio scan of seconds.
- The times and settings are **stored** in the memory of Timer and retrieved during Power ON.
- **Red LED "LOAD"** for shown the **activated Relè**.
- **Green LED "READY"** for shown the Timer is **READY**.
- **Small Display** to show the Time selected by the user (10 values, numbered from **0** to **9**).
- **3A/250V output Relay** and 3 way screw Terminal Block (**NO - Com - NC**).
- Can be activate LOADs up to **500 Watt**.
- Displaying: **50x19** mm. Red Display 7-segment (h. 0.59" digit - H. 14.2 mm.).
- Board dimensions (mm.): **89 x 95**.

CARATTERISTICHE

- Tensione di alimentazione: **12Vcc**.
- Gestione a **Microcontrollore**.
- Precisione al **Quarzo**.
- Conteggio tipo '**CountDown**' (conto alla rovescia).
- **Facile** da utilizzare.
- **4** pulsanti di comando: **SELEZIONE MEMORIA**, **PROG.**, **START** e **STOP**.
- **10 Tempi Programmable** da **1sec.** a **1 hour (59min. 59sec.)**.
- Ingresso per **Microswitch di sicurezza**.
- **Buzzer** per segnalazione di fine conteggio e scansione audio dei secondi.
- Tempi e impostazioni sono memorizzati nella **memoria** del Timer e recuperati all'accensione.
- **Spia rossa "LOAD"** per visualizzazione stato del relè (Attivato o Disattivato).
- **Spia verde "READY"** per visualizzazione Stato del **Timer PRONTO**.
- **Piccolo Display** per l'indicazione del tempo selezionato dall'utente (10 valori, da **0** a **9**).
- **Uscita relè: AC250V 3A** su morsettiera a vite (**NA - Com - NC**).
- Attivazione di carichi fino a **500 Watt**.
- Visualizzazione tempo su **Display 50x19** mm. (0,59" - Altezza cifre 14,2 mm.).
- Dimensioni della scheda (mm.): **89 x 95**.

PANEL DESCRIPTION / DESCRIZIONE PANNELLO COMANDI



USER'S GUIDE

INTRODUCTION

The **MT-10 Timer manage times from 1 SECOND** up to **60 MINUTES (59:59)** and the values to be programmed are 1 SECOND steps.

After Power ON, the **Timer** displays the last time used by user: so, by pressing the **START** button, the relay is activated (red "**LOAD**" light on) and the Timer begins to countdown. At the end countdown, the **LAMP** deactivates (and the red "**LOAD**" light goes off) and the buzzer emits 3 acoustic signals after which the timer becomes ready again (the green "**READY**" light on).

Alternatively, by pressing the **MEMORY SELECT (MEM.)** button, you can choose one of the **10 previously stored times** by user or, by pressing the **PROG.** button, enters the **TIME PROGRAMMING** mode: the number you are programming (or editing) is indicated by the value shown in the small display on the left (for example, if the small display shown number **5**, it means that you are programming/editing **Time number 5**).

If there is a **blackout**, 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.

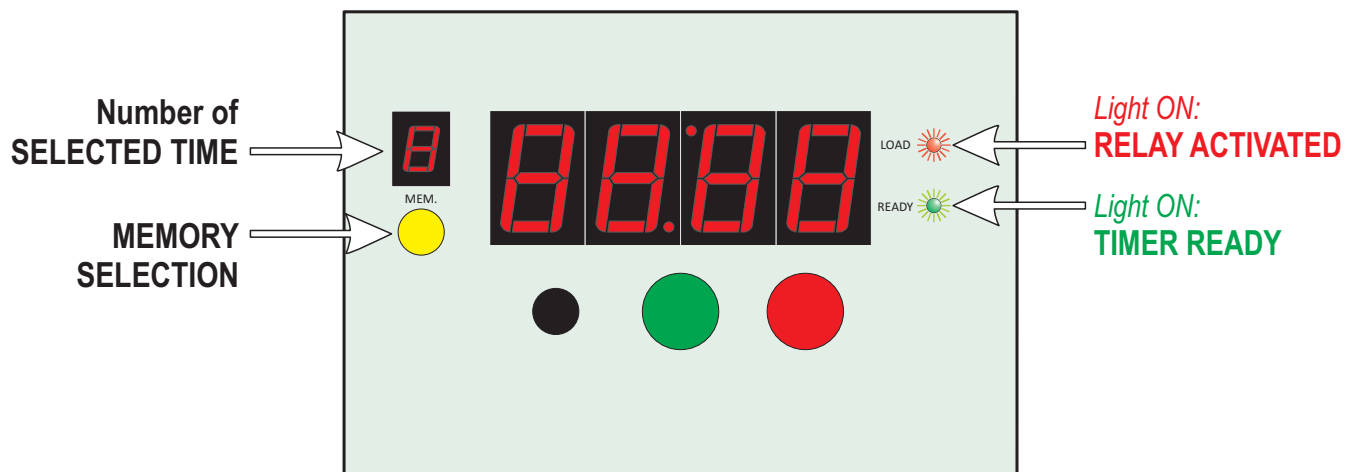
DEFAULT VALUES

When Power ON, the display always shows **the last time used by the user** (the time number is displayed on the small display on the left). If the Timer never been used, the default values at first Power ON are automatically sets to "**02:00**" (default values: 2 minutes for all memories).

THE LEDs of the TIMER

In the **Timer MT-10** there are a 4-digit display, a small single display (to the left) and two lights (to the right):

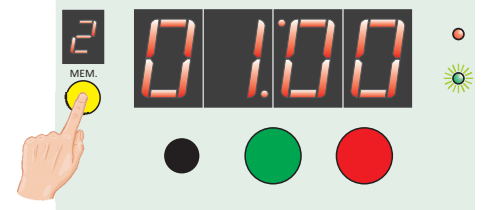
- **MEMORY DISPLAY** - The small display on the left indicates the selected **Time number** (from **0** to **9**).
- **LED "LOAD"** - This red LED lights is ON when the relay **is activated**.
- **LED "READY"** - The **READY** green LED is ON when the **Timer is Ready**.



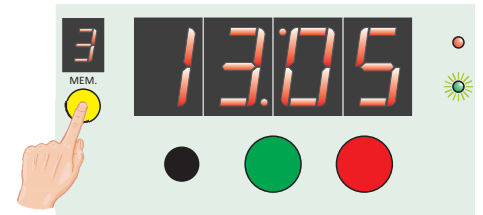
The COMMANDs BUTTON

CHOOSING the DESIRED TIME

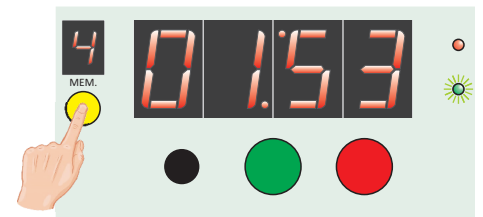
Before start the Timer, select (if necessary) the desired time by press one or more times the **MEMORY SELECT (MEM.)** button.



Each time the button is pressed, ONE of the **10 programmed times** will be shown on the 4-digit display and the corresponding number will be indicated by value shown in the small display to the left (from **0** to **9**).

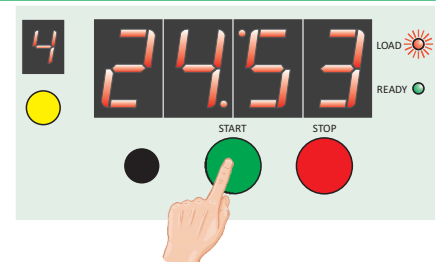


Once time number **9** has been reached, pressing the button again will restart from time number **0** and so on. The time currently shown on the 4-digit display (with format **MM:SS**) will be the one used by the Timer at start-up (in the example on the right, the Time number **4** has been selected, which corresponds to ONE minute and 53 seconds).

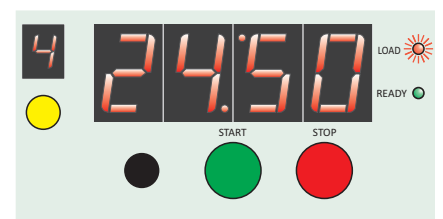


START / RESUME

This is the button for start the Timer. When the **START** button is pressed, the Timer activates the lamp and starts the countdown (starting from the time shown on the 4-digit display).



During the countdown, the red LED **"LOAD"** is on, indicating that the lamp is activated. Furthermore, the two separator red dots on the display flash at a frequency 1 second.



STOP / FINISH

This button, pressed during the countdown, momentarily stops the Timer and turns off the relay (the red LED **"LOAD"** goes off to indicate that the Timer is PAUSED). To restart the Timer (and turn the relay back on), press the **START** button otherwise, by pressing the **STOP** button a second time, the Timer will finish the countdown and returning to the starting screen (the green LED **"READY"** lights up).

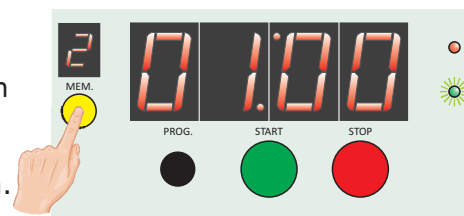


NOTE - During the pause, ONLY the lower small light dot remains lit on the display.

PROGRAMMING the TIMES

Before entering the PROGRAMMING mode, choose the Time number you want program by pressing the **MEMORY SELECT (MEM.)** button one or more times: the number of the Time is indicated by the value (0-9) shown in the small display at the left.

There are **10 times** that can be selected, so once you have reached the number **9**, pressing the button again restarts the sequence to **0** and so on.

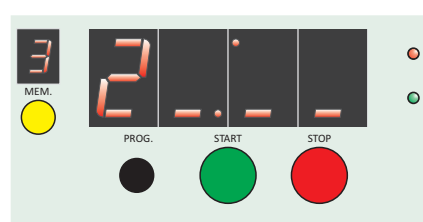


Once the desired Time to be programmed has been selected, press the **PROG.** button to enter the PROGRAMMING mode.

NOTE - To enter in the PROGRAMMING MODE, the Timer must be READY (green LED must be ON).



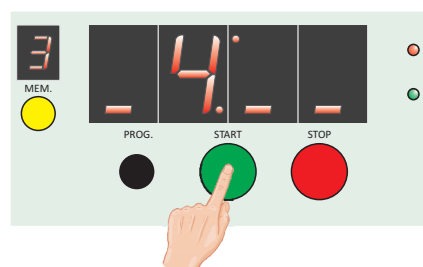
During programming the Time, ONLY one digit lights up on the display at a time (i.e. the one selected for entering the value to be programmed): the remaining digits on the display are "hidden" and their positions are indicated by **underscores**.



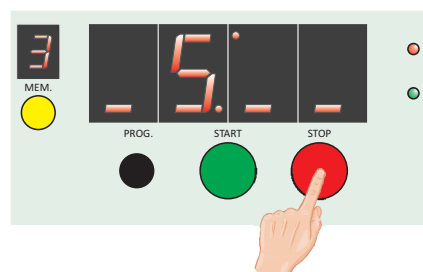
Select the POSITION and insert the VALUE

The **START** and **STOP** buttons have a double function: when entering the PROGRAMMING mode, these two buttons allow you to choose **the position** of the digit to be programming and **the value** to enter, as described below:

○ Button ► (**START**) - Each press of this button selects a different position on the display (from left to right). In correspondence with the selected position, the digit in which the value to be programmed will be entered will be displayed. After the fourth position, pressing the button again restarts the sequence from the first position and so on.



○ Button ▲ (**STOP**) - Each press of this button inserts a value from **0** to **9** to the selected position. Once the value **9** has been reached, pressing the button again restarts from the value **0** and so on.



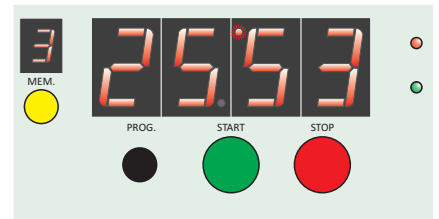
To exit the **PROGRAMMING**, press a second time the **PROG** button: in this way, the time appearing on the display will be saved in the memory with the number indicated by the small display at the left: for example, if upon exiting PROGRAMMING mode the value shown by small display is **3**, the time programmed will be saved in the memory as **Time number 3**.



THE LIGHT DOTS ON THE DISPLAY

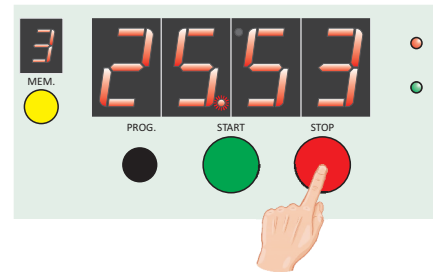
HIGH DOT ON (Safety microswitch open)

The **HIGH DOT** lights up when the safety switch connected to **M3** terminal block (**SW**) **opens**. For example, the contacts of a microswitch connects to the **M3** terminal block can be detects the opening of a safety door (such as that of a bromograph). In other words, the contacts on terminal block M3 must always be closed for the Timer to work. Whenever the contacts on terminal block M3 are open, the Timer stops **and both the green and red LEDs go off**. If this happens during the count, the relay is deactivated and to automatically restart the Timer from the point where it was interrupted, it's necessary to close again the contacts on **M3** terminal block. If you do not want to manage terminal block **M3**, you must short-circuit it with a wire jumper.

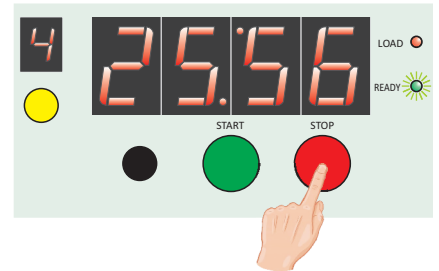


LOW DOT ON (Timer paused)

The **LOW DOT** lights up when, during a countdown, you press the **STOP** button to PAUSE the timer (the red "**LOAD**" light goes off).



In this situation, by pressing the **START** button, the Timer restarts from where it was interrupted, while by pressing the **STOP** button once again, the counting stops definitively (FINISH) and the Timer is ready to be started again by the user (green "**READY**" light on).



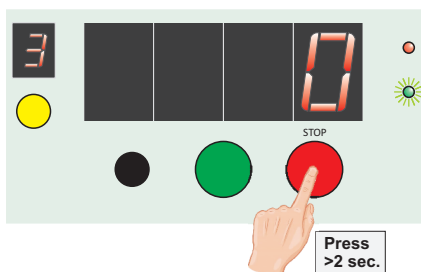
AUDIO SCAN of SECONDS

The **Timer MT-10** always emits **3 beeps** once the countdown is finished.

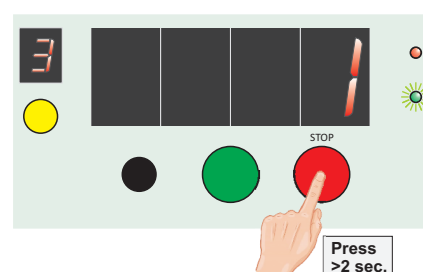
If the **audio scan of seconds** is **enabled**, the buzzer will also emit a very short beep every seconds (like a "toc").

NOTE - The audio scan of the seconds can be enabled/disabled **ONLY** when the Timer is **READY** (green LED ON).

To enable/disable the audio scan of the seconds, press and hold the **STOP** button for at least 2 seconds until the display shows the number "**0**" or "**!**", then release the button.



0 = Audio scan **DISABLED**

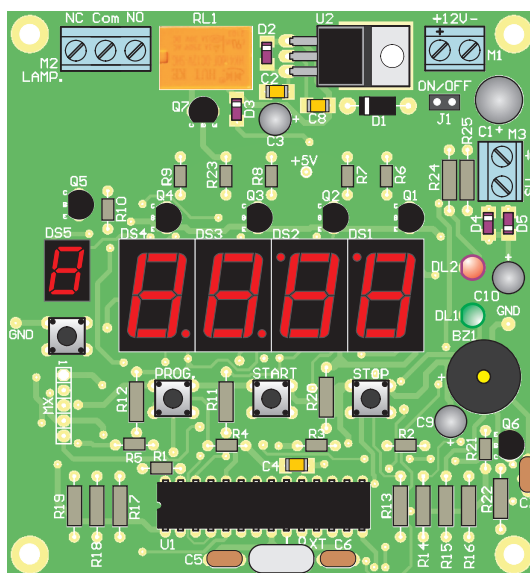


! = Audio scan **ENABLED**

BOARD "A" VERSION

Note that when installing the board version "A" (MT-10/A) on the wall or on the bottom of a container, **ALL COMPONENTS** must be mounted to the same face of board, as shown in the following figure:

Board MT-10/A

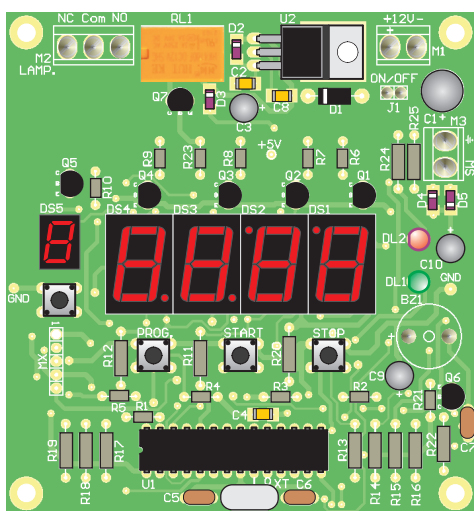


BOARD "S" VERSION (FOR MOUNTING TO THE PANEL)

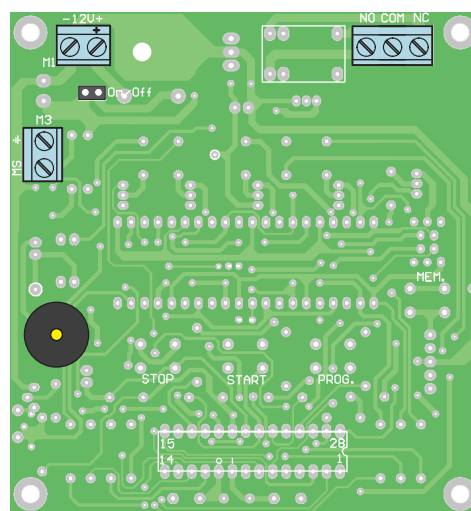
If you prefer to install the board to the panel (after having drilled the holes for the buttons, those for the LEDs and the openings for the displays), you need to build the board version "S" (MT-10/S): in this version, the 3 terminal blocks M1-M2-M3, the J1 connector and the buzzer are soldered on the opposite side of the board to allow easy access to these components once the board is installing to the panel (see the following figures).

NOTE - For both versions, it is advisable to use a small transparent red plexiglass screen (thickness 2 or 3 mm) to apply above the display: in this way, the contrast is increased and the display reading will be much clearer and more contrasted.

Board MT-10/S

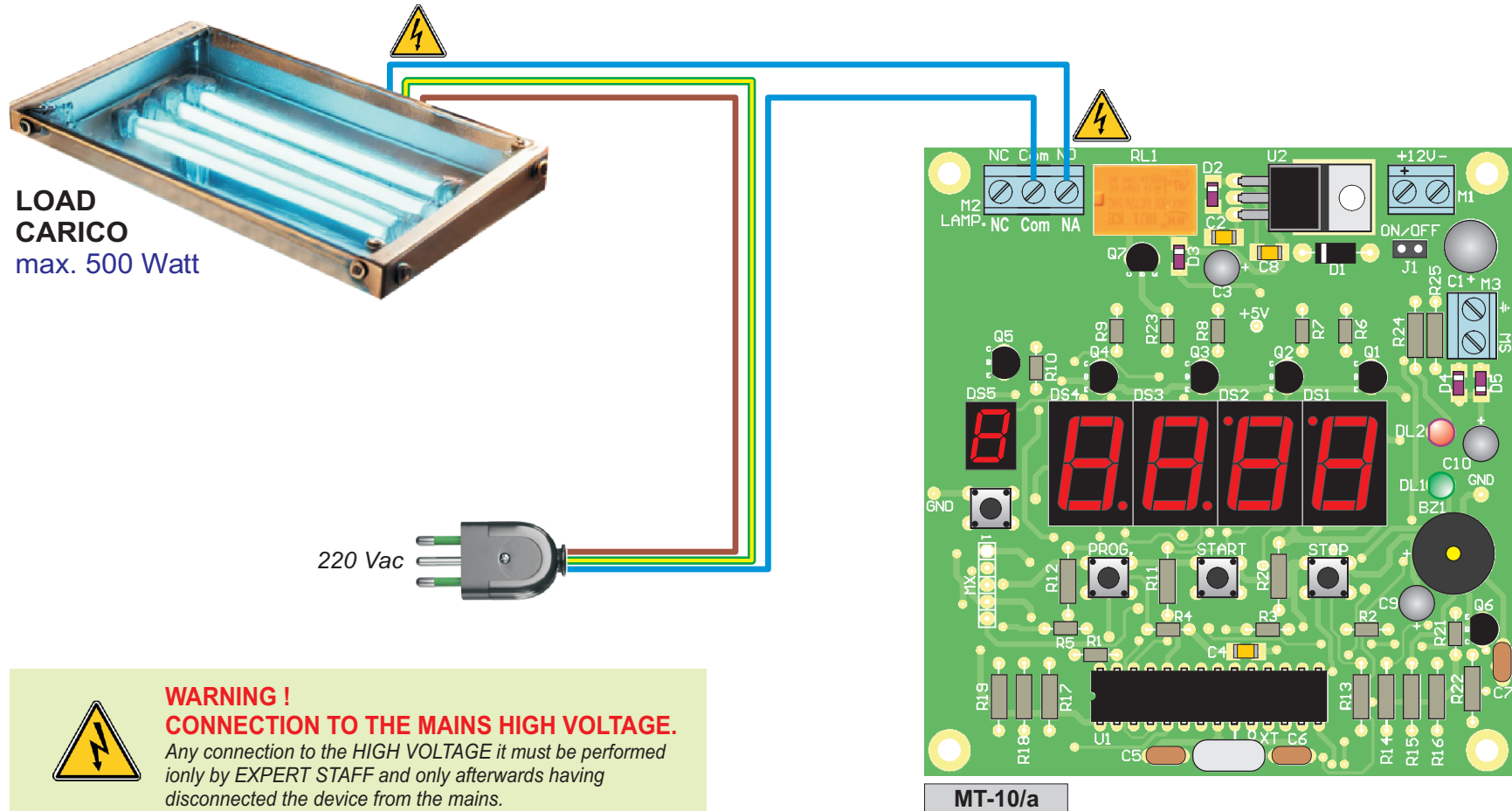


Top view



Bottom view

CONNECTING the LOAD - COLLEGAMENTO del CARICO (MT-10/a)



**WARNING !
CONNECTION TO THE MAINS HIGH VOLTAGE.**

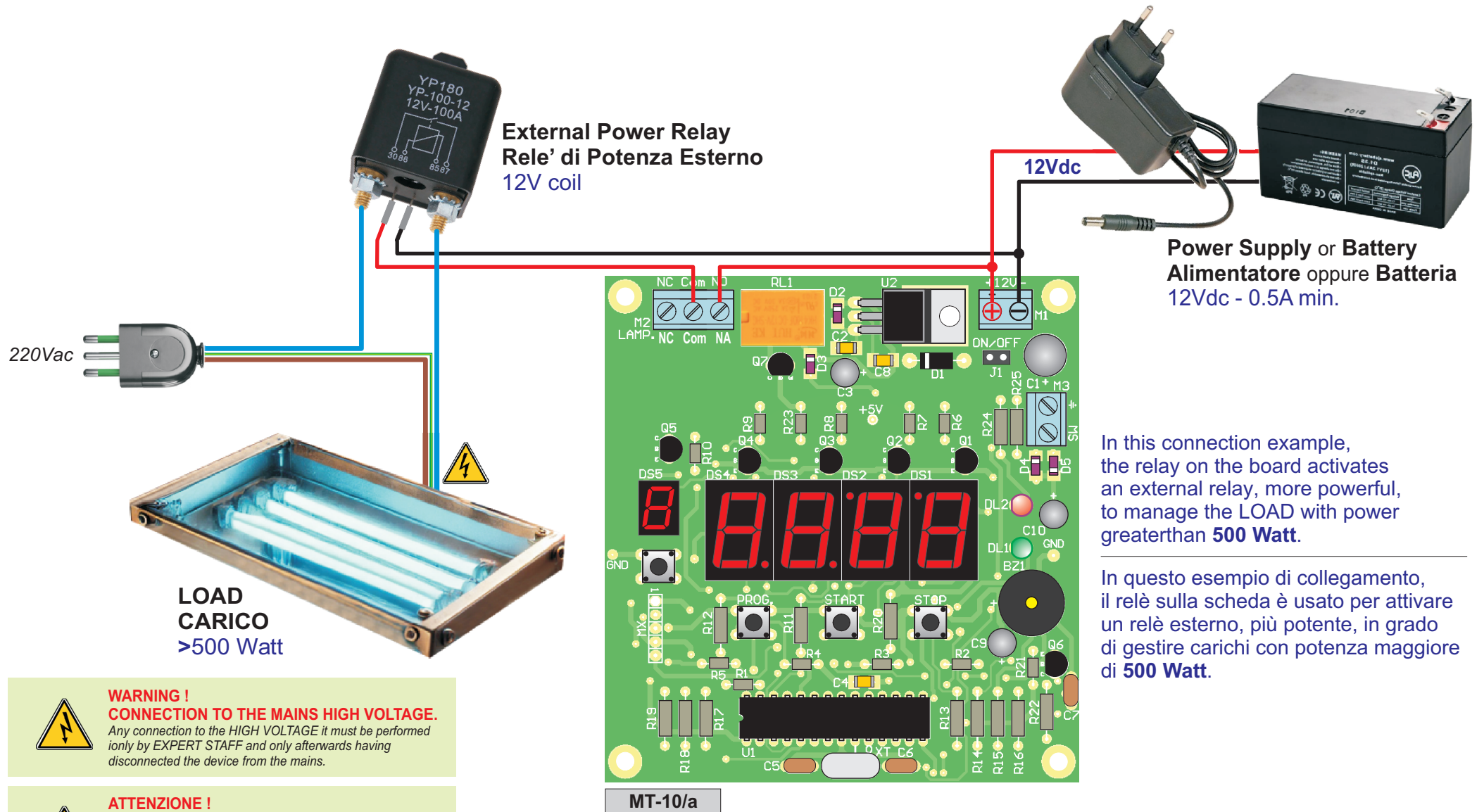
Any connection to the HIGH VOLTAGE it must be performed only by EXPERT STAFF and only afterwards having disconnected the device from the mains.



**ATTENZIONE !
COLLEGAMENTO ALLA TENSIONE DI RETE.**

Qualsiasi collegamento o intervento con l'ALTA TENSIONE va eseguito solo da PERSONALE ESPERTO e solo dopo aver scollegato il dispositivo dalla rete elettrica.

CONNECTING an EXTERNAL RELAY - COLLEGAMENTO di un RELE' ESTERNO (MT-10/a)



In this connection example, the relay on the board activates an external relay, more powerful, to manage the LOAD with power greater than **500 Watt**.

In questo esempio di collegamento, il relè sulla scheda è usato per attivare un relè esterno, più potente, in grado di gestire carichi con potenza maggiore di **500 Watt**.

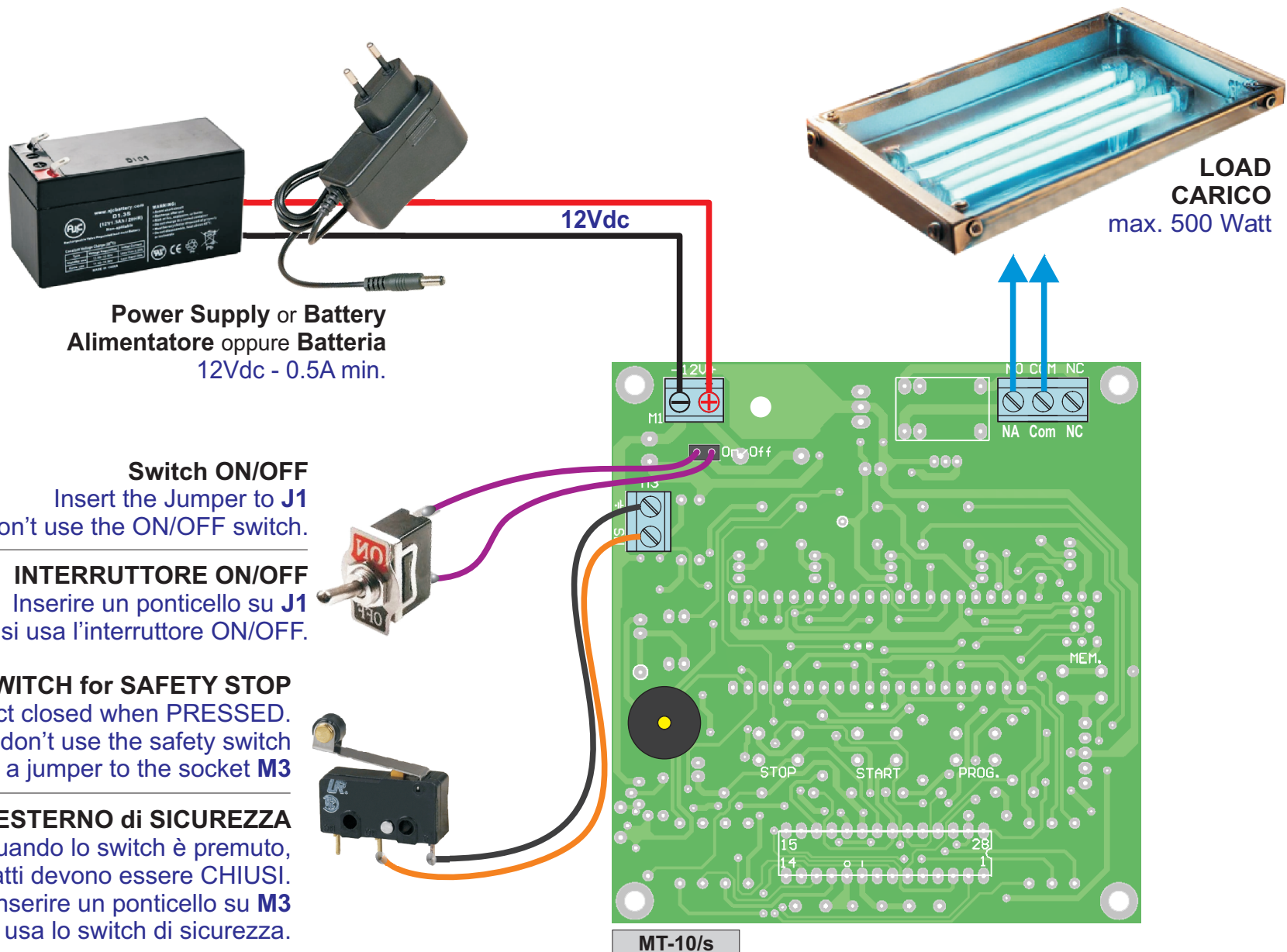


WARNING !
CONNECTION TO THE MAINS HIGH VOLTAGE.
Any connection to the HIGH VOLTAGE it must be performed only by EXPERT STAFF and only afterwards having disconnected the device from the mains.

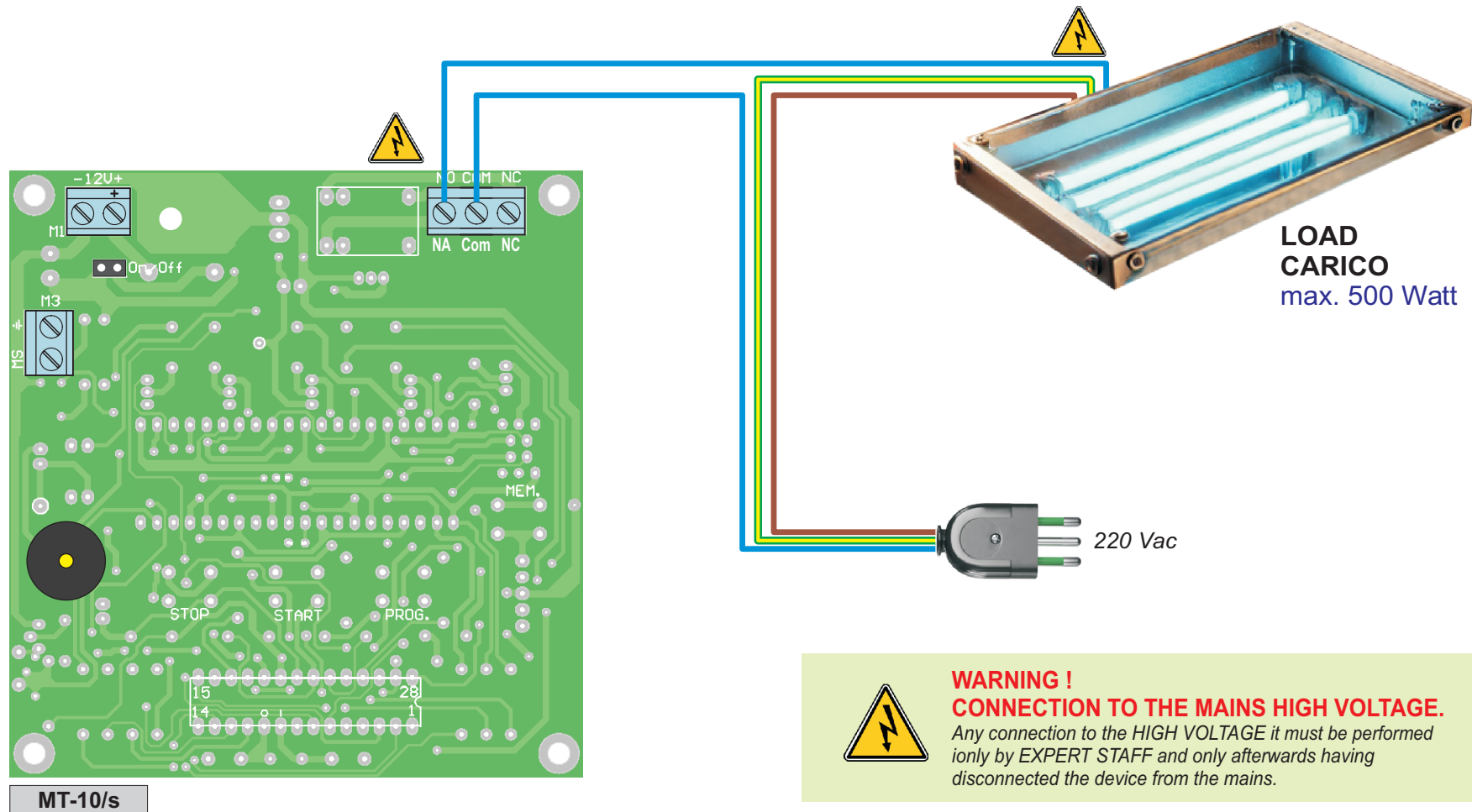


ATTENZIONE !
COLLEGAMENTO ALLA TENSIONE DI RETE.
Qualsiasi collegamento o intervento con l'ALTA TENSIONE va eseguito solo da PERSONALE ESPERTO e solo dopo aver scollegato il dispositivo dalla rete elettrica.

MT-10/s - WIRING DIAGRAM - SCHEMA COLLEGAMENTI



CONNECTING the LOAD - COLLEGAMENTO del CARICO (MT-10/s)



DIMENSIONS and HOLES / DIMENSIONI e FORI

