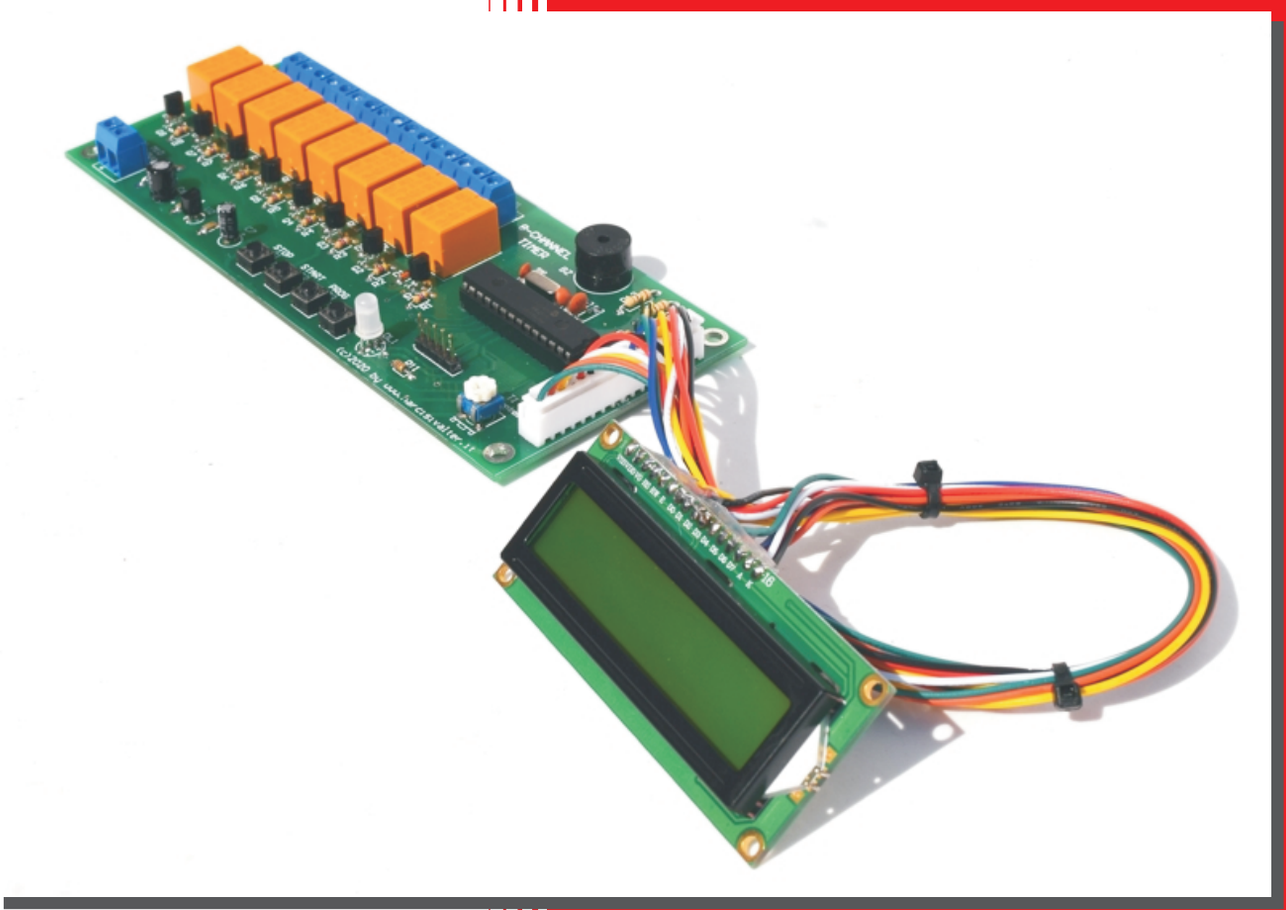
OWNER's MANUAL

# 8-Channel Digital Timer

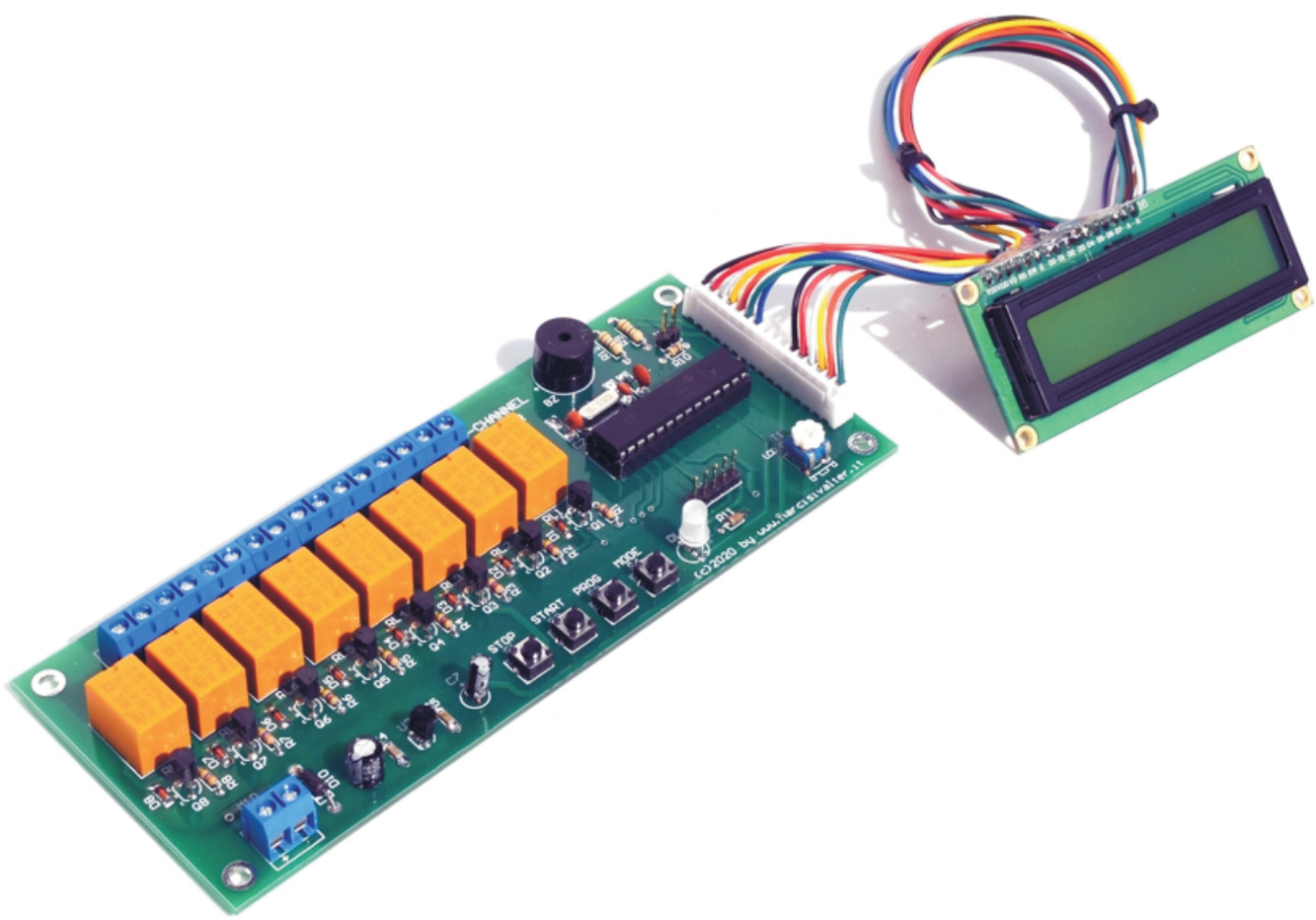


# 8-Channel Programmable Digital Timer

based on PIC16F886

# 8-CHANNEL TIMER - FEATURES

- Input voltage: **12 Vdc** (0,5-1A)
- Manage with a **Microcontrolle**r (Microchip PIC16F886).
- **Quartz precision** (±0.5 secs every 24 hours).
- **Count Down** mode.
- **Easy to use**.
- **4 command buttons**: **START / RESUME** **STOP / PAUSE** **PROG** and **MODE/SELECT CH**.
- **8 programmable time from 00:00:01** up to **99:59:59** (1 sec. step)
- **Programmed Times stored in the memory** (Non-Volatile data).
- Option **AUDIO SCAN** (of seconds).
- **RGB LED** on board for instant display of the various Timer states (Prog, Start, Pause and Ready).
- Relay outputs: **AC250V 3A** (SPST) in eight two-Way screw terminal blocks.
- **LCD Display** 2 row x 16 char.
- PCB dimensions: **162 x 65 mm.**
- Multipurpose uses for a **wide range of applications**.



# PROGRAMMING MODE

***NOTE** - Entry into **PROGRAMMING** is possible only if the LCD display shows **"Ready"** and the **LED is OFF**.*


***NOTE** - The CHANNEL/RELAY to be programmed is what shown on the LCD Display. To program the time of a different channel, before entering PROGRAMMING, choose the desired one by pressing one or more time the **MODE** button.*

**To enter in PROGRAMMING mode**, press the **PROG** button: the LED will ON blu color.


Once entered in **PROGRAMMING mode**, use the following buttons:

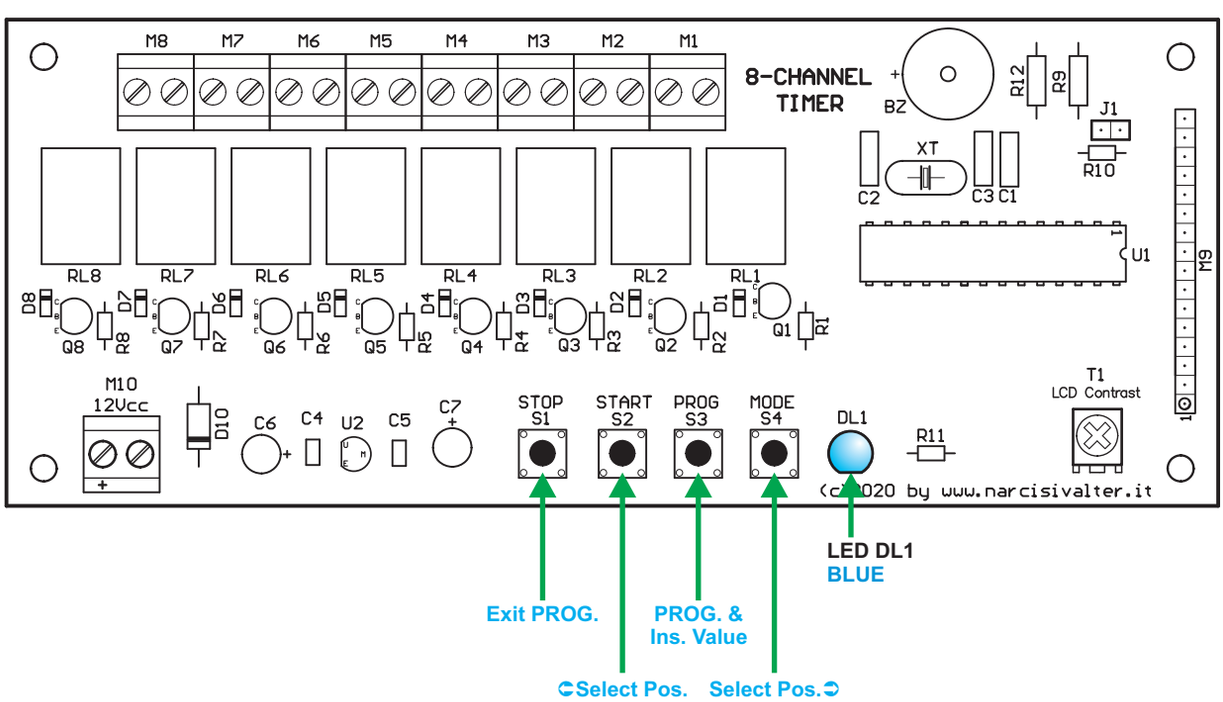
**Ins. Value** - (PROG button) Allows you to enter a digit between **0** and **9** at the blinking cursor.
The entry is of the circular type so once you reach **9**, the next press of the button starts from **0** and so on.

**Select Pos.➲** - (MODE button) Moves the blinking cursor to the right.

**➲Select Pos.** - (START button) Moves the blinking cursor to the left.

**Exit PROG.** - (STOP button) Exit PROGRAMMING mode and turns OFF the LED. Each time you exit the PROGRAMMING, mode, the time value displayed on the LCD Display is stored in the memory of the microcontroller.

**The buttons to be used in the PROGRAMMING mode**



# USER'S GUIDE

## USING THE TIMER

The **8-Channel Timer** manages times from 1 second to 100 hours (from **00:00:01** up to **99:59:59**) with 1 second resolution.

During the countdown, the Timer can be momentarily **stopped and restarted** or **stopped definitively**: in this last case, it returns to the ready state (**Ready**) and the LED turns OFF.

The Timer always starts the **CHANNEL/RELAY time currently displayed** on the LCD.
To change the channel number, press one or more time the **MODE** button until the desired CHANNEL/RELAY is displayed (for e.g., in the following screenshot, the CHANNEL/RELAY no.4 has been selected).

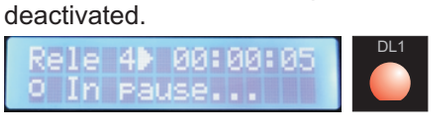

## THE COMAMND BUTTONS (START, STOP and MODE)

### START (RESUME)

When the LCD displays "**Ready**" and the LED is OFF, press the **START** button to start the countdown.
Once started, the Relay of the corresponding channel will be activated and the GREEN LED turns ON.


***NOTE** that if the LCD displays the time **00:00:00**, the Timer does not start.*

When the **STOP** button is pressed during the countdown, the Timer pauses (the RED LED will ON) and the Relay is deactivated.



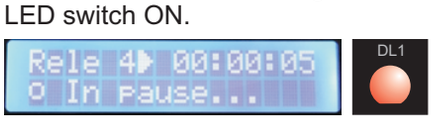

In this situation, to restart the countdown from where it was interrupted, press the **START** button.

At the end of countdown (when the Display shows **00:00:00**), the Timer deactivates the Relay, the LED turns OFF and the buzzer emit 3 beeps and then the programmed time of the **CHANNEL/RELAY** will displayed again on the LCD Display**.**



### STOP (PAUSE)

This button, pressed during the countdown, temporarily pauses the Timer and deactivates the Relay: in this case the RED LED switch ON.




To restart the Timer (and reactivate the Relay), press the **START** button otherwise, a second press of the **STOP** button, definitively deactivates the Timer and makes it ready for a new count (**Ready** and **LED OFF**).

## MODE (SELECT CH.)

Press the **MODE** button once or more to select the CHANNEL/RELAY you want to activate.
Channel selection occurs only if the Timer is ready (**Ready**) and the **LED is OFF**.

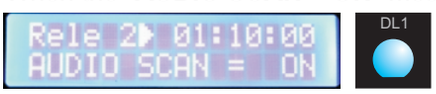

***NOTE** - The numer of channel is selected in a circular mode: once channel n. 8 is displayes, the next press of MODE button restarts from Channel n. 1 and so on.*

## AUDIO SCAN (OF SECONDS)

The **AUDIO SCAN** option, during a countdown, emits a short beep every second (the classic "toc").

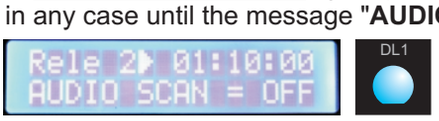
To **enable AUDIO SCAN** option, the Timer must be ready (**Ready**), so press and hold the **MODE** button for at least 2 seconds.

When the "**AUDIO SCAN = ON**" message appears on the display, release the button.

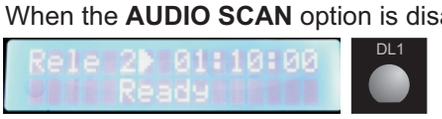



***NOTE** - The activated **AUDIO SCAN** option is indicated by the speaker icon next to "**Ready**" text.*


To **disable AUDIO SCAN** option, the procedure is the same: press and hold the **MODE** button for at least 2 seconds and in any case until the message "**AUDIO SCAN = OFF**" appears on the display.

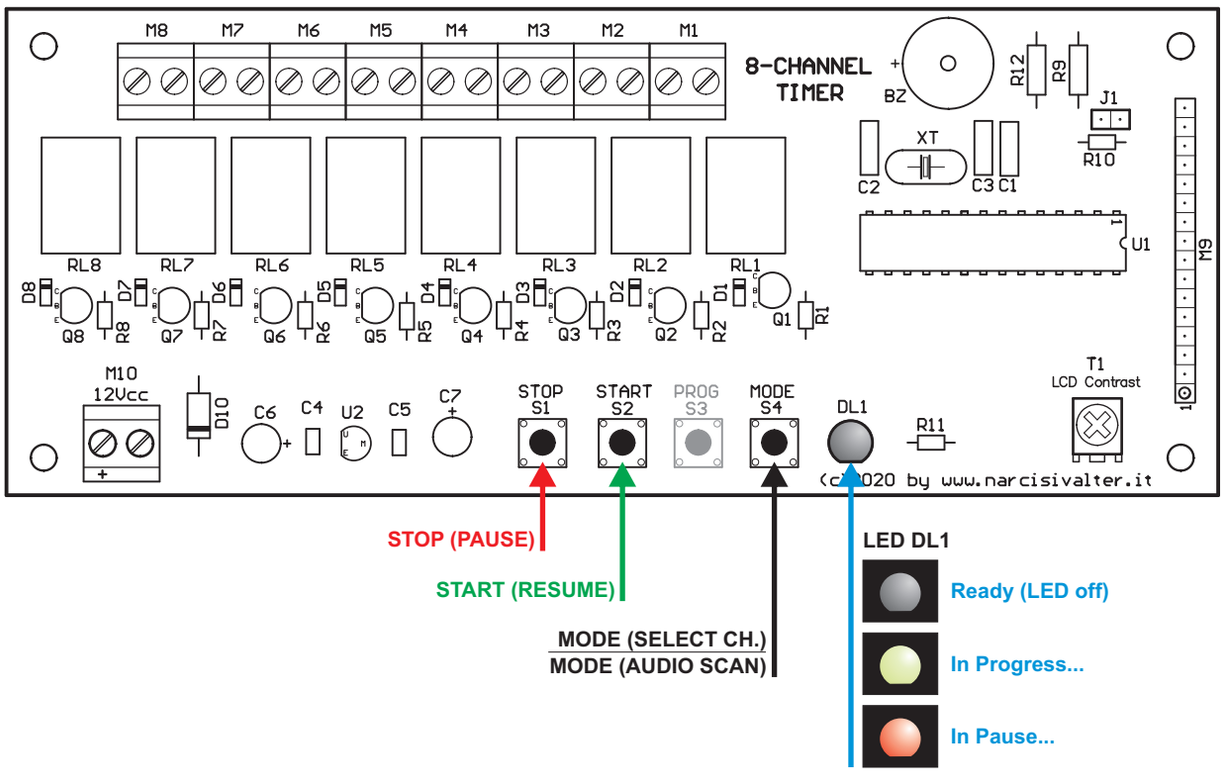



When the **AUDIO SCAN** option is disabled, the speaker icon is not be displayed.




***NOTE** - The setting AUDIO SCAN remains in memory even when the Timer power OFF.*

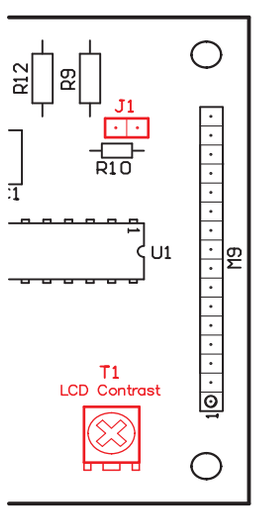
## The buttons to be used during the TIMER operations



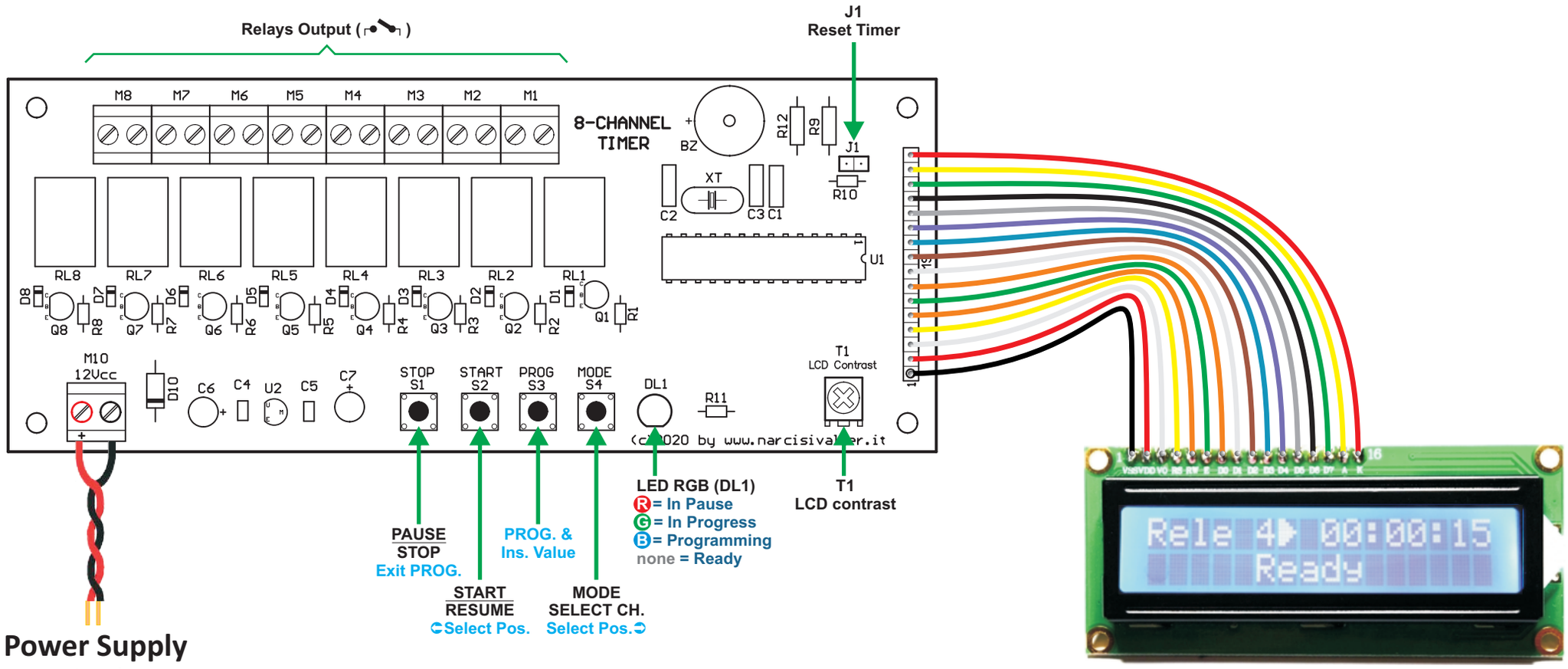

## LCD CONTRAST and HARDWARE RESET

To adjust the **contrast of the LCD Module**, turn the **T1 trimmer** using a small screwdriver.

On the connector marked **J1** (Reset) can be applied to a small button by pressing which the Timer is reset immediately and becomes in the **Ready** state.
It may be useful, for e.g., to create a kind of "**PANIC button**" to press when you don't know what to do or if you prefer however to reset the Timer immediately.

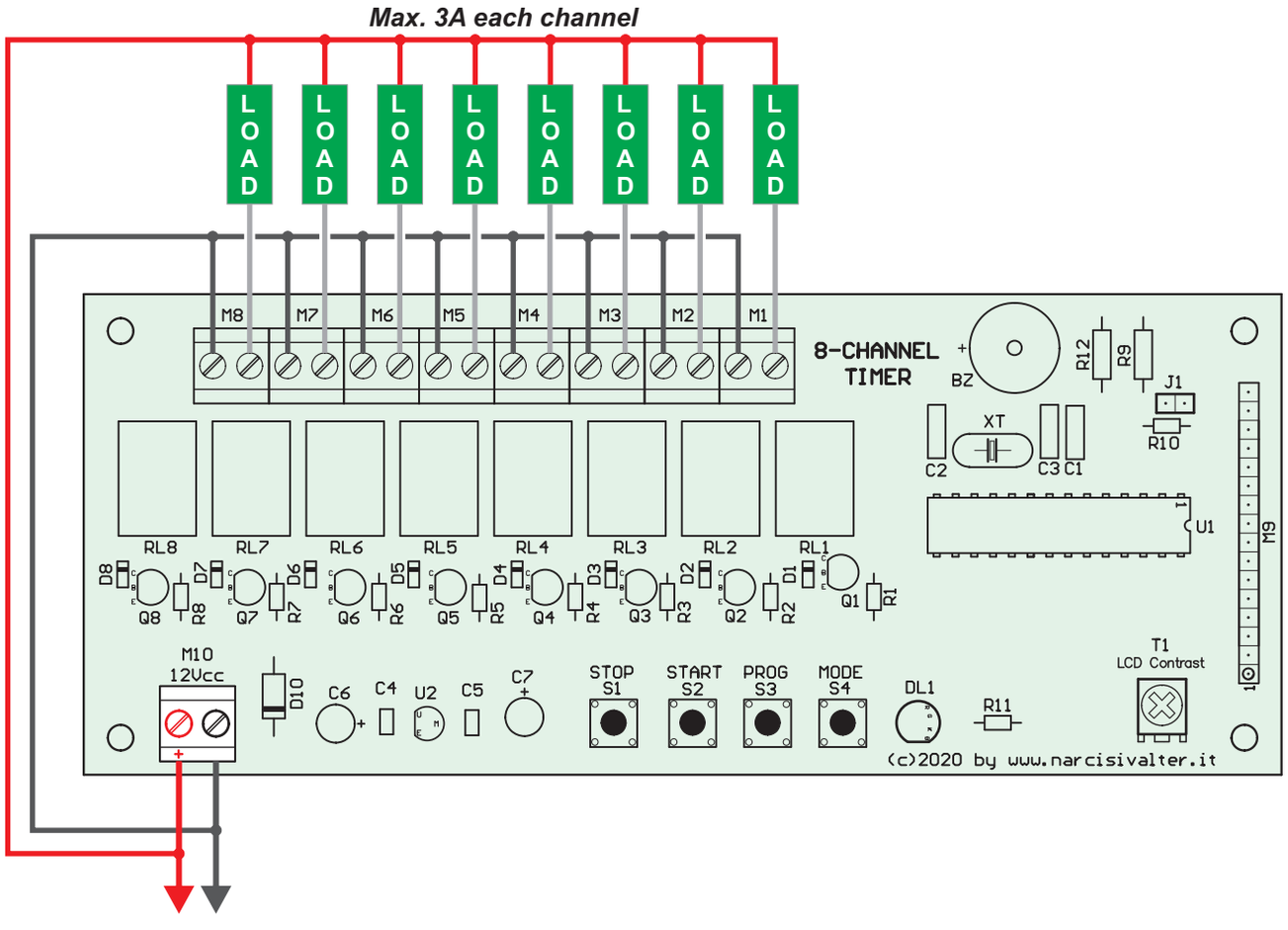


# COMMANDS, RGB LED and LCD Module




**Power Supply**
12 Vdc
(0,5 - 1A)

# RELAYS WIRING (12V LOADs)




**Power Supply**
12 Vdc
1A or more
(depends by LOADs)

# RELAYS WIRING in AT (110-220 Vac LOADs)