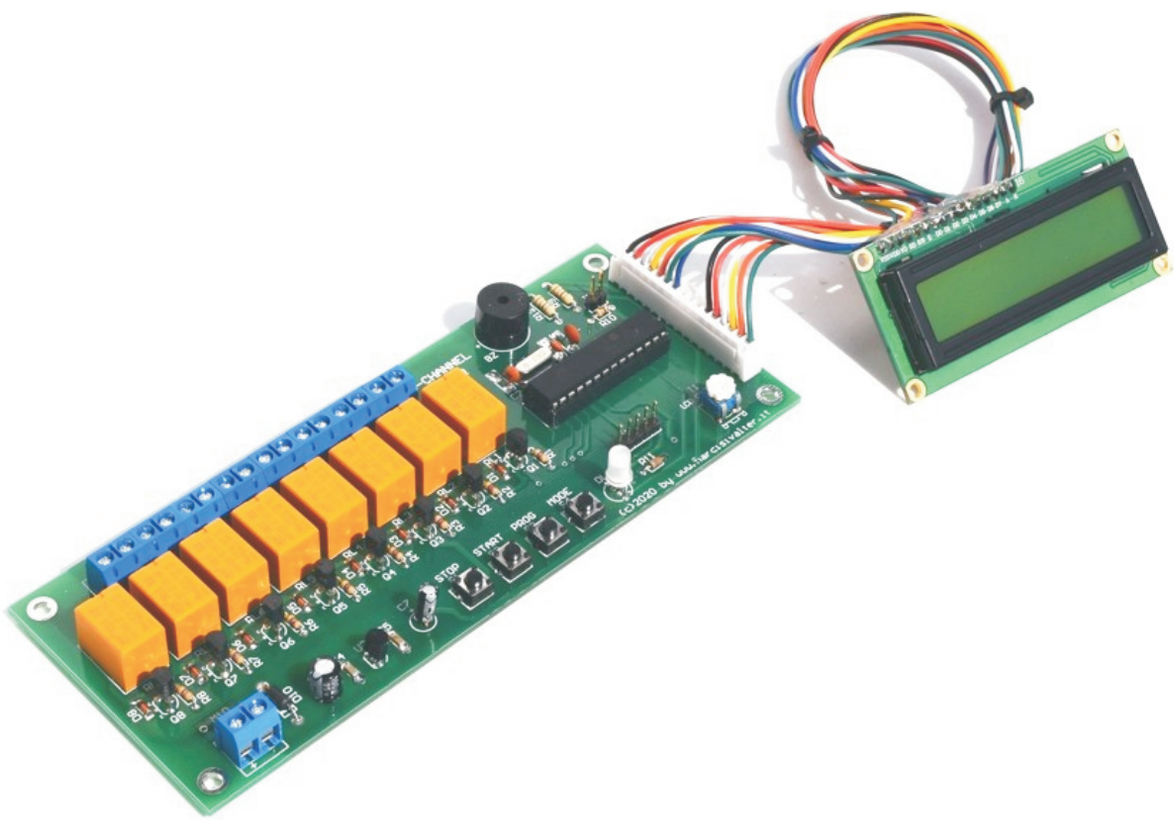
OWNER's MANUAL

8-Channel Sequential Digital Timer



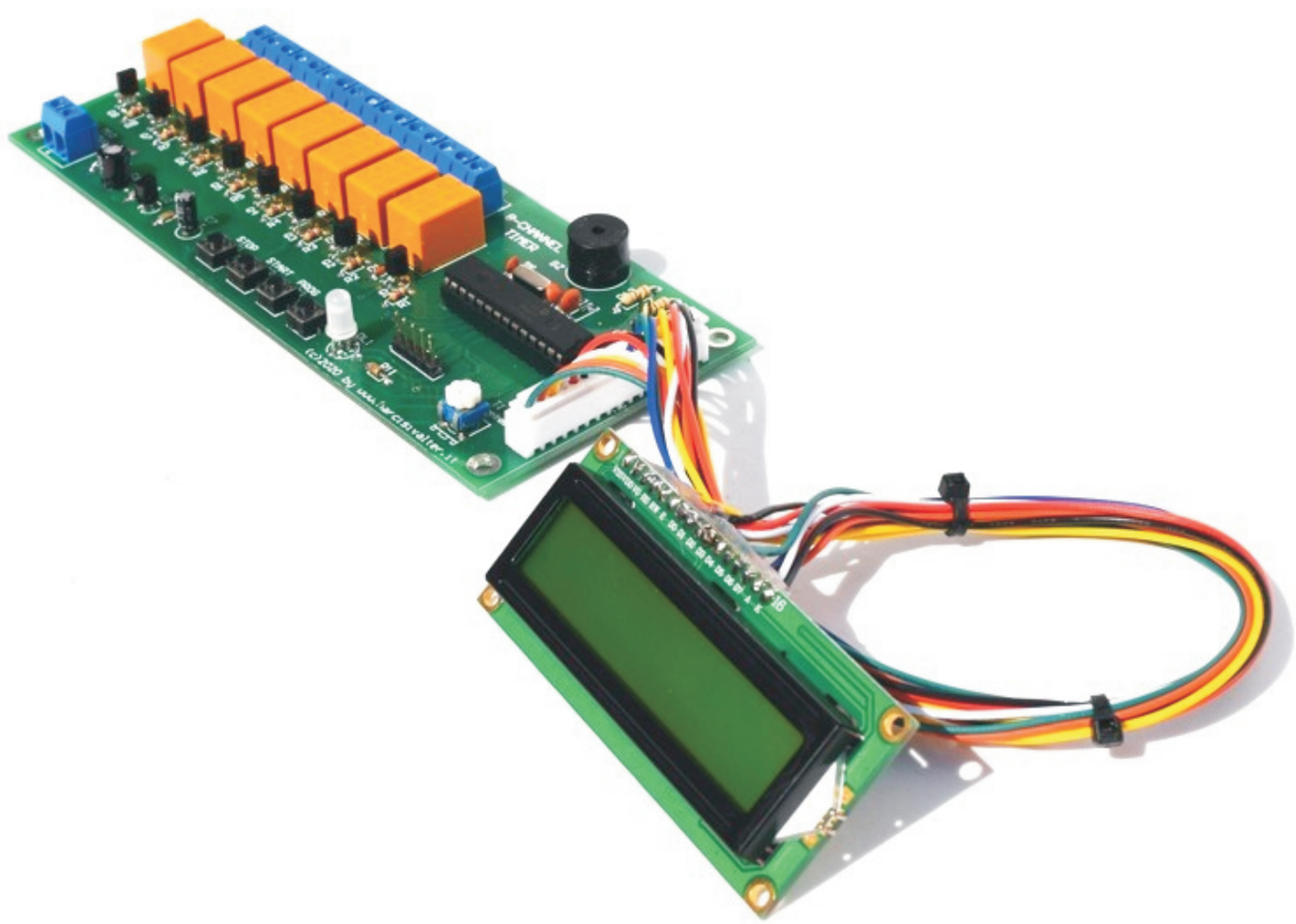
8-Channel Sequential (Cyclic) Digital Timer

based on PIC16F886 Microchip

www.narcisivalter.it

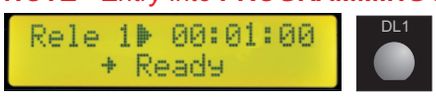
T8SEQ FEATURES

- Input voltage: **12 Vdc** (0,5-1A)
- Manage with a **Microcontrolle**r (Microchip PIC16F886).
- **Quartz precision**.
- **Countdown** 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 "**SINGLE RELAY**" or "**GROUP RELAYs**".
- Option "**CYCLIC**" (Automatic repet of sequences).
- Relay outputs: **3A/250VAC - 3A/30VDC** (**SPST**) in eight two-Way screw terminal blocks.
- On-board **RGB LED** for instant display of the various Timer states (Prog, Start, Pause and Ready).
- **LCD Display** 2 row x 16 char.
- PCB dimensions: **162 x 65 mm.**
- LCD Module dimensions: **80 x 36 mm.**
- Multipurpose uses for a **wide range of applications**.



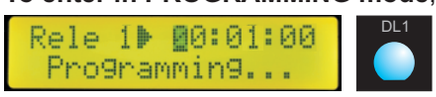
PROGRAMMING MODE

***NOTE** - Entry into **PROGRAMMING mode** 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 **MODE** button once or several times.*

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



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

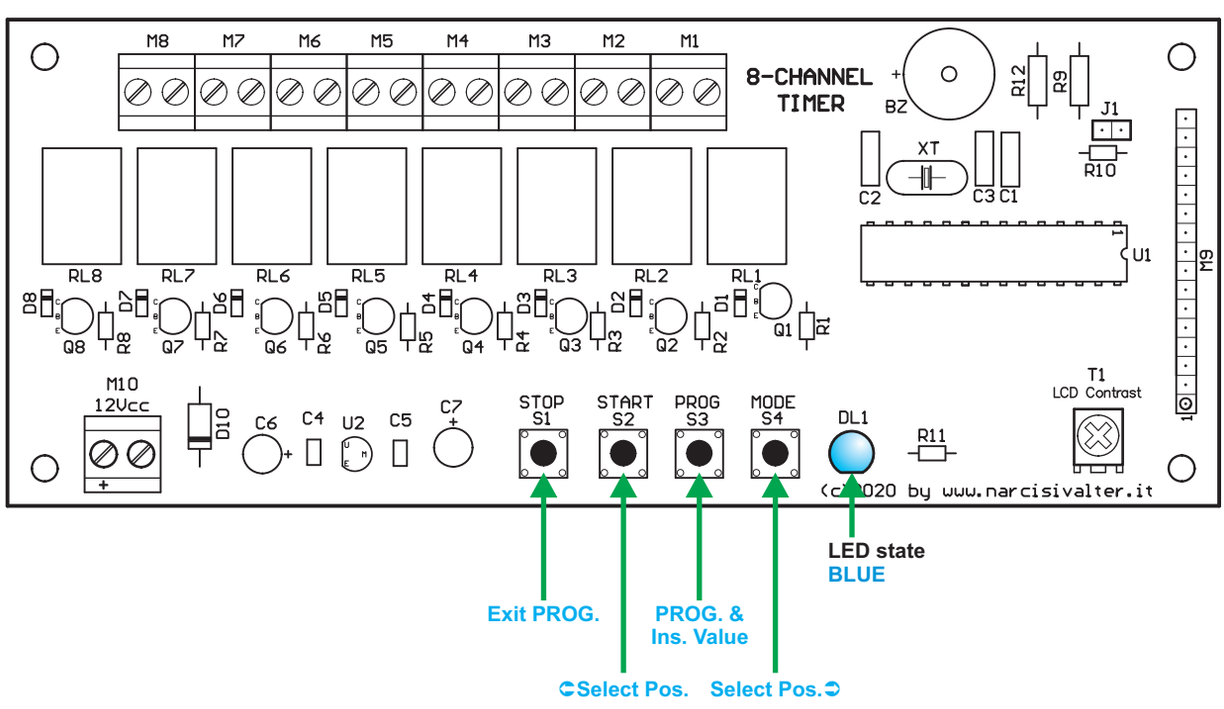
Ins. Value - (PROG button) Allows you to enter a digit between **0** and **9** at the blinking cursor.
The entry is circular type so once you reach **9**, the next press of button restarts from **0** and so on.

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 screen is stored in the memory of the microcontroller.

The buttons to be used in the PROGRAMMING mode



USER'S GUIDE

USING THE 8 CHANNEL SEQUENTIAL TIMER

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

NOTE - *After Power ON, the Timer always shown the* ***CHANNEL/RELAY no. 1*** *as shown in the following screenshot.*

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.

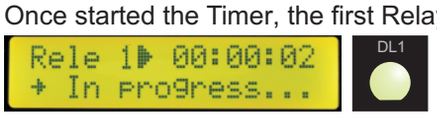
THE COMMAND BUTTONS (START, STOP and MODE)

START (RESUME)

When the LCD displays "**Ready**" and the LED is OFF, press **START** button to start the countdown.
NOTE *- If the Timer has been set as* ***CYCLIC****, it starts automatically both when the Power On and when the mains voltage restore after a black out.*

NOTE *- The Timer always starts the* ***CHANNEL/RELAY no. 1****. If a CHANNEL/RELAY has been programmed with a value 00:00:00, that channel will be ignored and the Timer will go directly to the next channel.*

Once started the Timer, the first Relay will be activated and the GREEN LED turns ON.

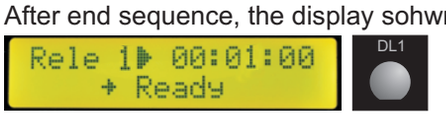


When the **STOP** button is pressed during the countdown, the Timer pauses (the RED LED will ON) and the Relay is deactivated.

When the Timer is paused, to restart the countdown from where it was interrupted, press the **START** button.

At the end countdown of all CHANNEL/RELAYs, the Timer deactivates the last Relay, the LED turns OFF and the buzzer **emit 3 long beeps**.

After end sequence, the display sohwn the **Ready** state and the value of CHANNEL/RELAY no. 1.

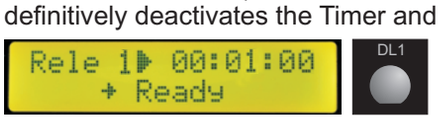


NOTE *- If the Timer has been set with "****CYCLIC****" option, at the end of activation sequence, it restarts again from the* ***first CHANNEL/RELAY*** *and so on until the* ***STOP/PAUSE*** *button is pressed.*

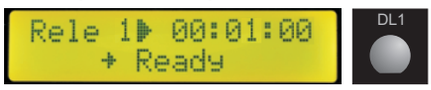
STOP (PAUSE)

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 times to **select the CHANNEL/RELAY** to program (or simply to read it the value). This operation is possible ONLY if the Timer is ready (**Ready**) and the **LED is OFF**.



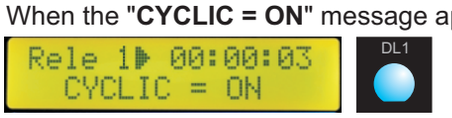
***NOTE** - The number of channel is selected in a circular mode: so, once channel n. 8 is displayed, the next press of MODE button restarts from Channel n. 1 and so on.*

How to set the CYCLIC Option

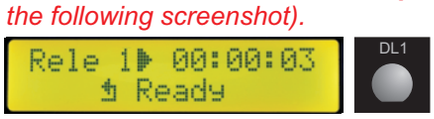
With the **CYCLIC** option, the Timer automatically repeat always the activation sequence.
When the **CYCLIC option enabled**, only the **STOP** button can stop the Timer.

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

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

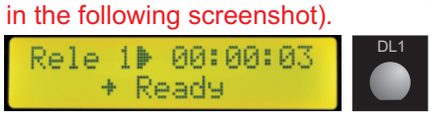


***NOTE** - The **activated CYCLIC option** is indicated by the **circular arrow** symbol next to "Ready" text (as you can see in the following screenshot).*



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

***NOTE** - The **deactivated CYCLIC option** is indicated by the **straight arrow** symbol next to "Ready" text* (as you can see in the following screenshot).

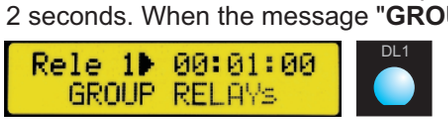


***NOTE** - The **CYCLIC** option remains in memory even when the Timer power OFF.*

How to set the RELAY OUTPUTs Option

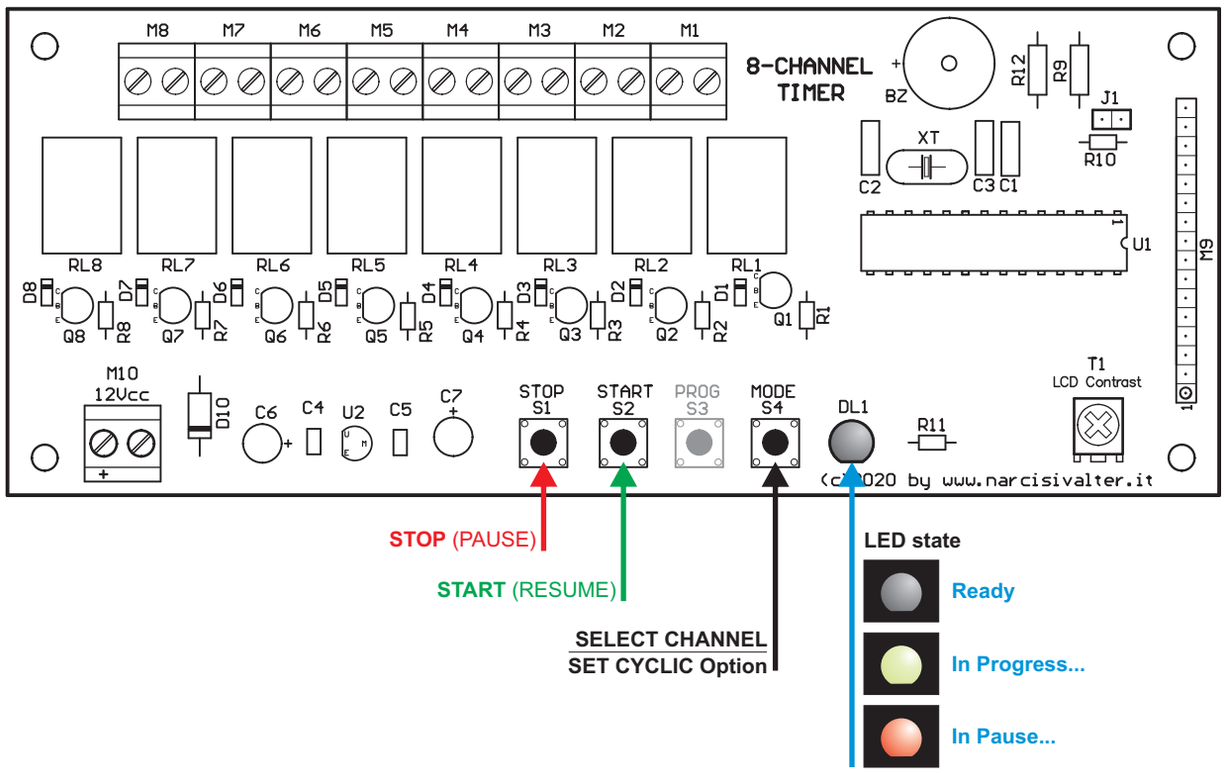
The option "**RELAY OUTPUTs**" sets the behavior of the relays during the sequence that is if each of the relays, once at the end of the corresponding time, it must remain activated (**GROUP RELAYs**) or not (**SINGLE RELAY**).

To **enable the RELAY OUTPUTs** option, the Timer must be ready (**Ready**), so press and hold the **STOP** button for at least 2 seconds. When the message "**GROUP RELAYs**" or "**SINGLE RELAY**" appears on the display, release the button.



***NOTE** - The **RELAY OUTPUTs** option remains in memory even when the Timer power OFF.*

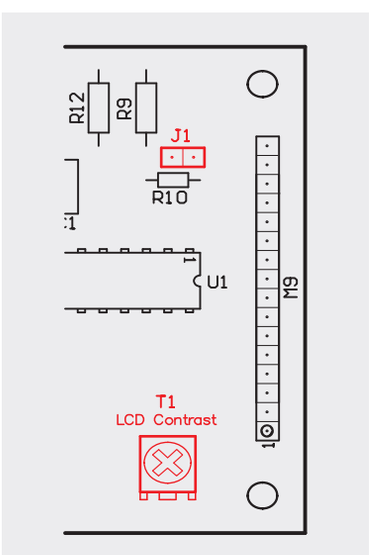
The buttons to be used during the TIMER operations



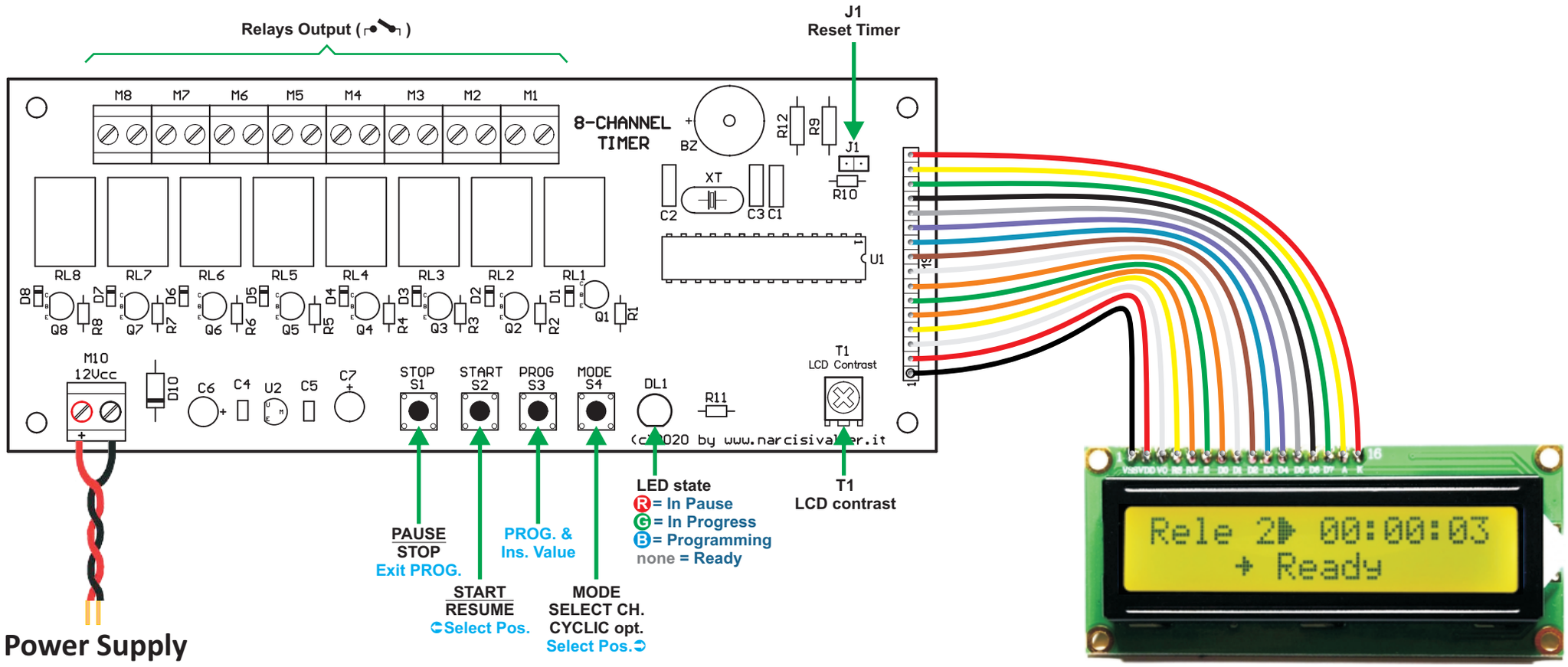
LCD CONTRAST and HARDWARE RESET

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

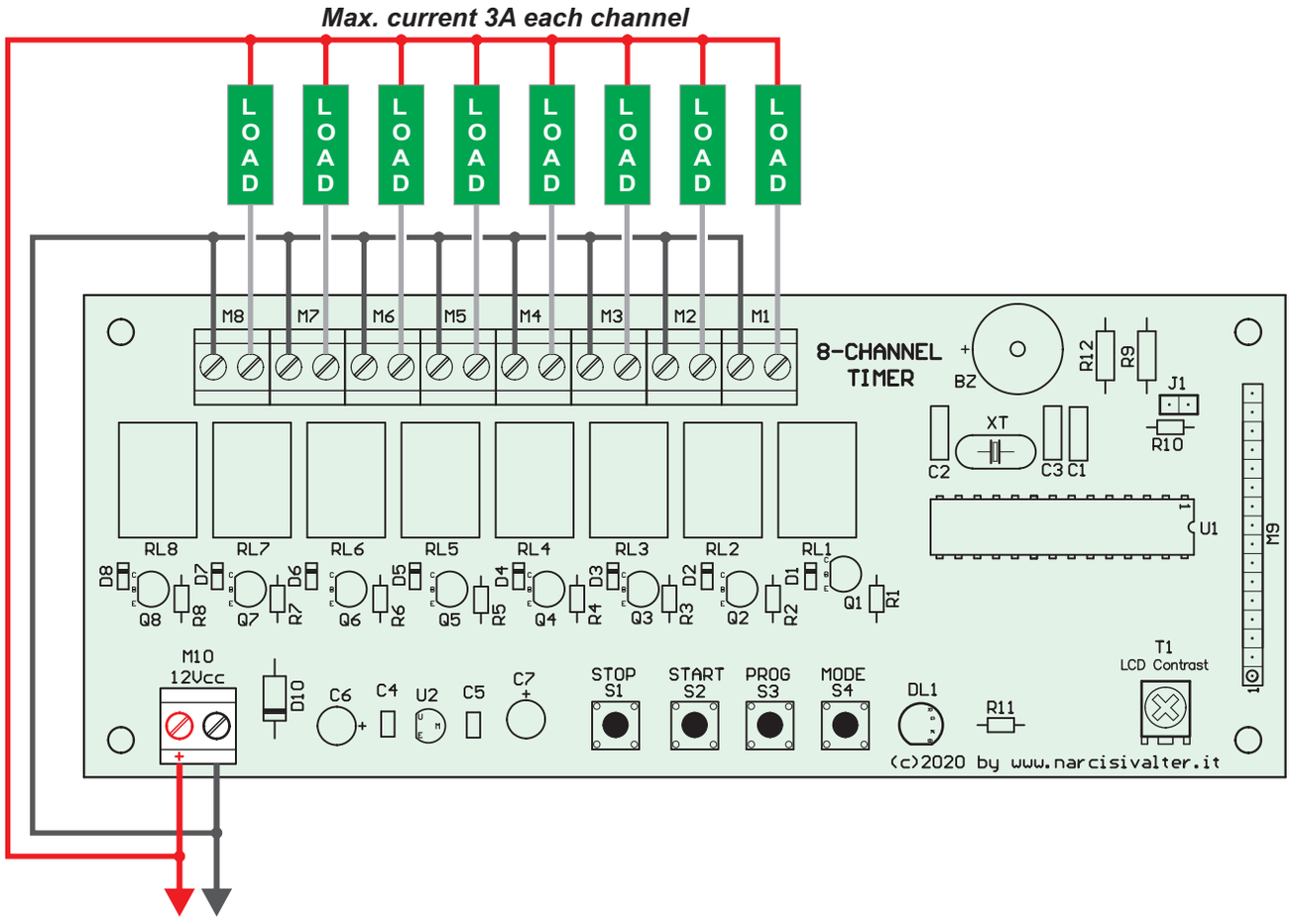
On the connector marked **J1** (Reset) can be applied to a small button by pressing which the Timer is reset immediately and becomes in the **Ready** state.
It may be useful, for e.g., to create a kind of "**PANIC button**" to press when you don't know what to do or if you prefer however to reset the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



COMMANDS, RGB LED and LCD Module



WIRING SAMPLE (with 12V LOADs)



WIRING SAMPLE in AT (110-220 Vac LOADs)