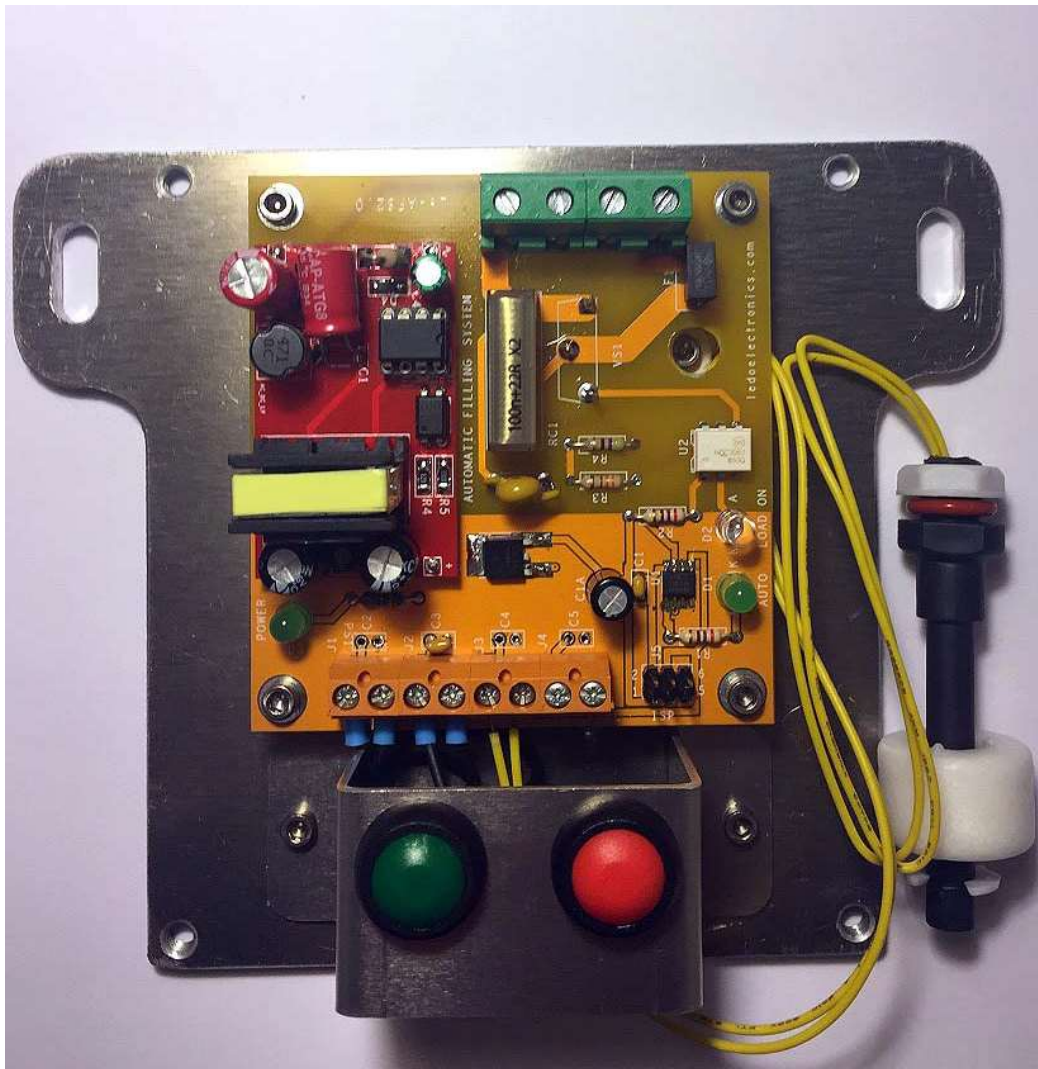


AUTOMATIC FILLING SYSTEM



- **Wide AC Line voltage range 90 ... 250V AC**
- **Maximum load current 20A**
- **26A Triac as switching element**
- **Manual, automatic, semiautomatic and timed control of a pump**
- **START / STOP buttons**
- **Entry for high level and low tank level detectors**
- **Mode indication LED and timing value**
- **Indication LED of the state of charge**
- **Indication LED of the status of the AC network**

The **Le-AFS2.0** module has been designed for the control of a single-phase pump with up to 2 KW, either in manual mode, by means of two start and stop buttons or in automatic or semi-automatic mode if the tank has one or two level detectors.

It also allows timed filling control. This method is less precise, but the user can choose between three different timing values, and perform the filling without the need to install any level detector in the tank.

Mode programming

To change the control mode it is necessary to keep the **STOP** button pressed for more than 5 seconds, and release it when the required mode is activated, according to the following list:

The indication of the active mode is as follows:

1. Manual mode.
Led mode indication off.
2. Semi-automatic mode.
Mode indication LED flashes
3. Automatic mode.
Mode indication LED on

In manual mode the control of the pump is carried out with the start and stop buttons regardless of the state of the level detectors.

In semiautomatic mode, we start the pump by pressing the **START** button and it will remain on until the high level detector is activated (full tank) or until we press the **STOP** button.

In automatic mode, the two level detectors (full tank and empty tank) intervene. We start the pump with the **START** button. It will remain on until the high level detector is activated (full tank) or until we press the **STOP** button, but unlike the semi-automatic mode, the pump will restart if the empty tank detector is activated. In this way, it is guaranteed that there is always water in the tank without the intervention of the operator.

In all modes, the pump can be switched on and off using the **START** and **STOP** buttons.

Timer value Programming

For the display of the timing value, we use two LEDs, the mode (green LED) and the red status LED of the load. This means that, during this sequence, the pump can start and stop several times, unless it is previously disconnected from the electronic board.

We can enter the timing value selection mode by pressing the START button for a long time. Initially, the red LED is activated. Then both LEDs are off, and the coded indication of the timing time begins according to the following table:

| TIMER | GREEN LED | RED LED |
|------------|-----------|---------|
| OFF | OFF | OFF |
| 15 MINUTES | OF | ON |
| 30 MINUTES | ON | OFF |
| 45 MINUTES | ON | ON |

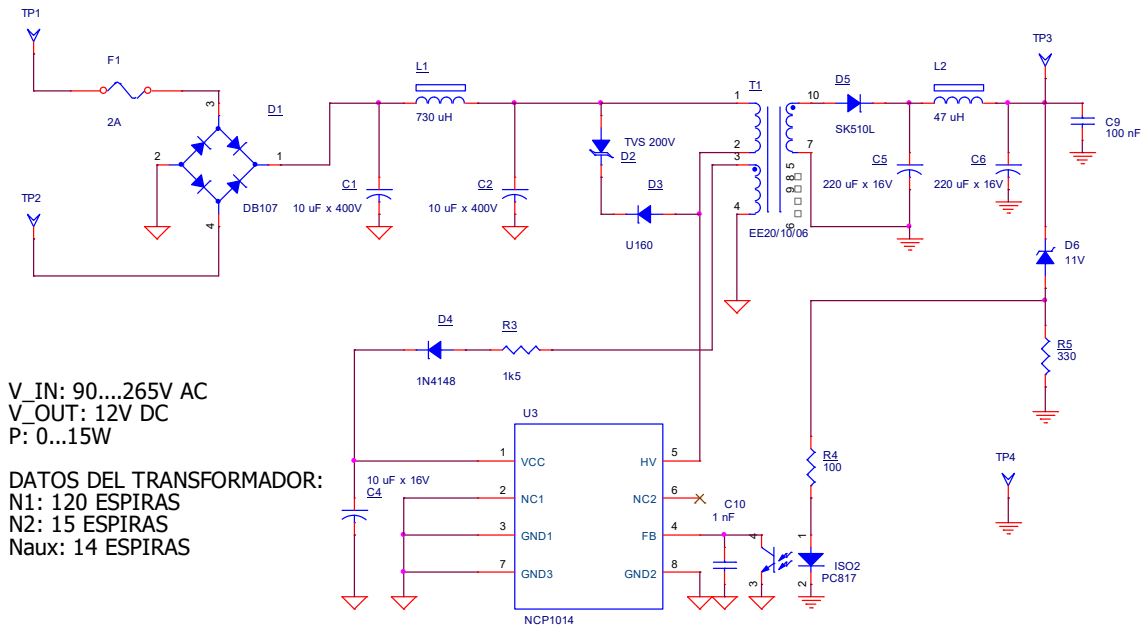


Fig.1. Auxiliary power supply ac_dc_lp from Ledoelectronics.

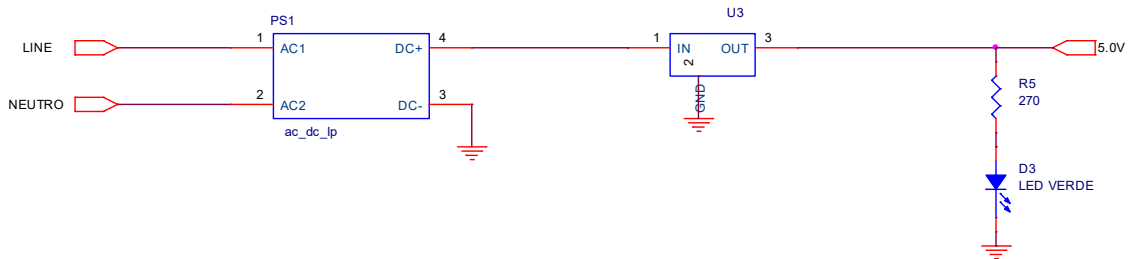


Fig.2. 5.0V regulator. Microcontroller Power supply.

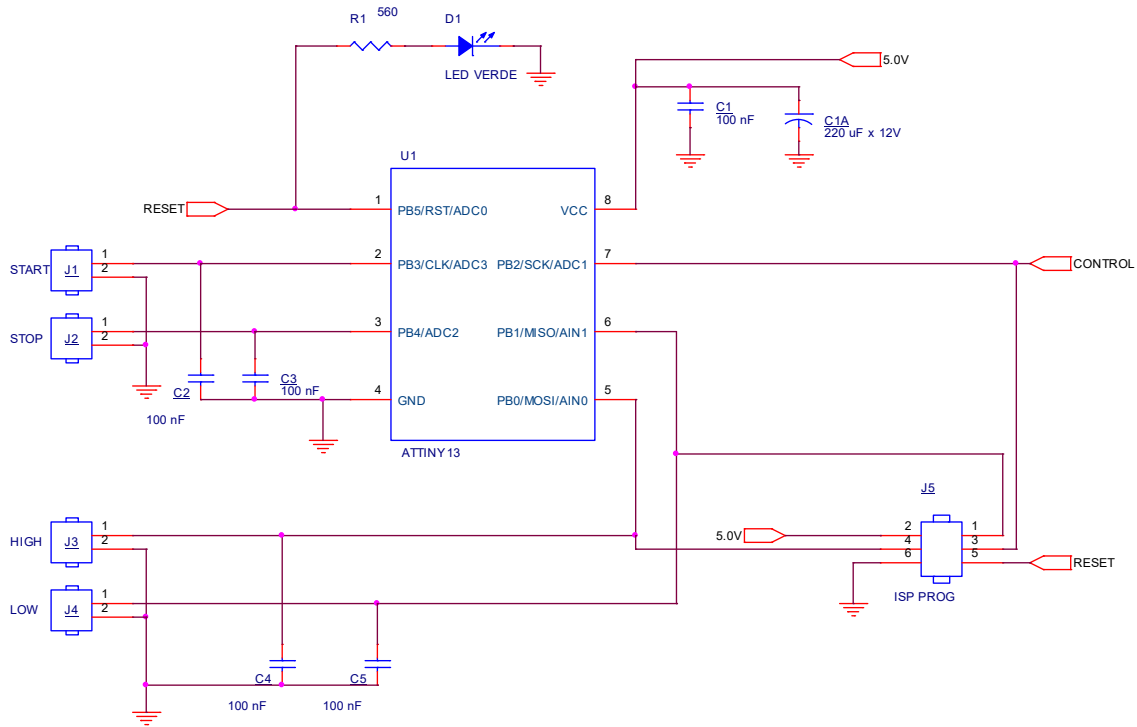


Fig.3. CPU.

We must hold the **START** button until the LEDs indicate the desired time.

The timing control is only executed if we also choose the semiautomatic control mode (flashing green LED). In manual and automatic modes, the timer does not work.

It is possible to display the timing value, without having to modify it. For this it is necessary to press the **START** button first and immediately after the **STOP** button, and keep them pressed for more than five seconds.

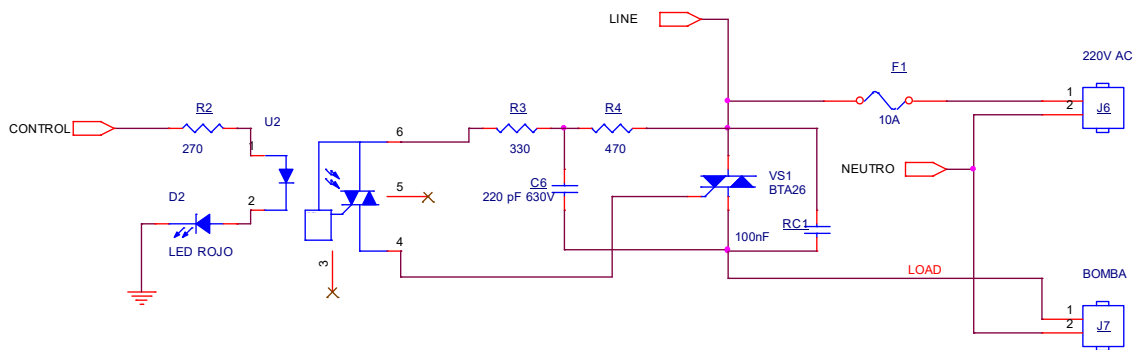


Fig.3.Triac Control.

The triac VS1 has the body isolated, so it can be screwed directly into the panel of the box for heat dissipation.

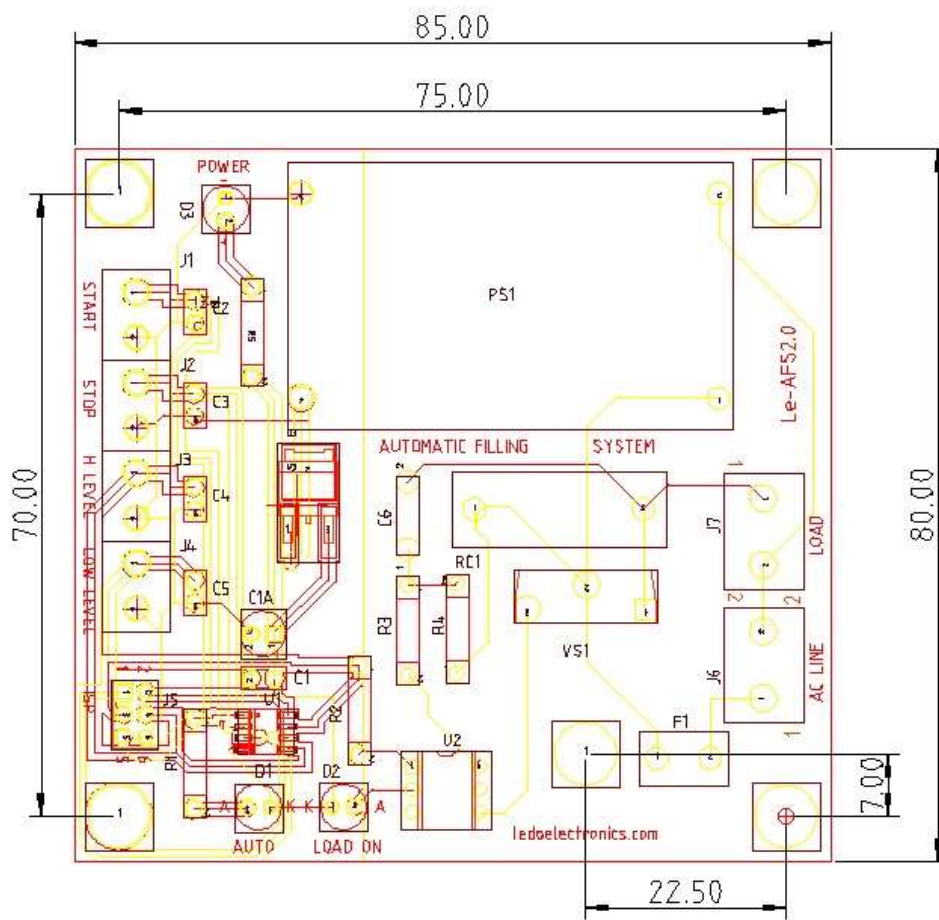


Fig.4. Board outline.