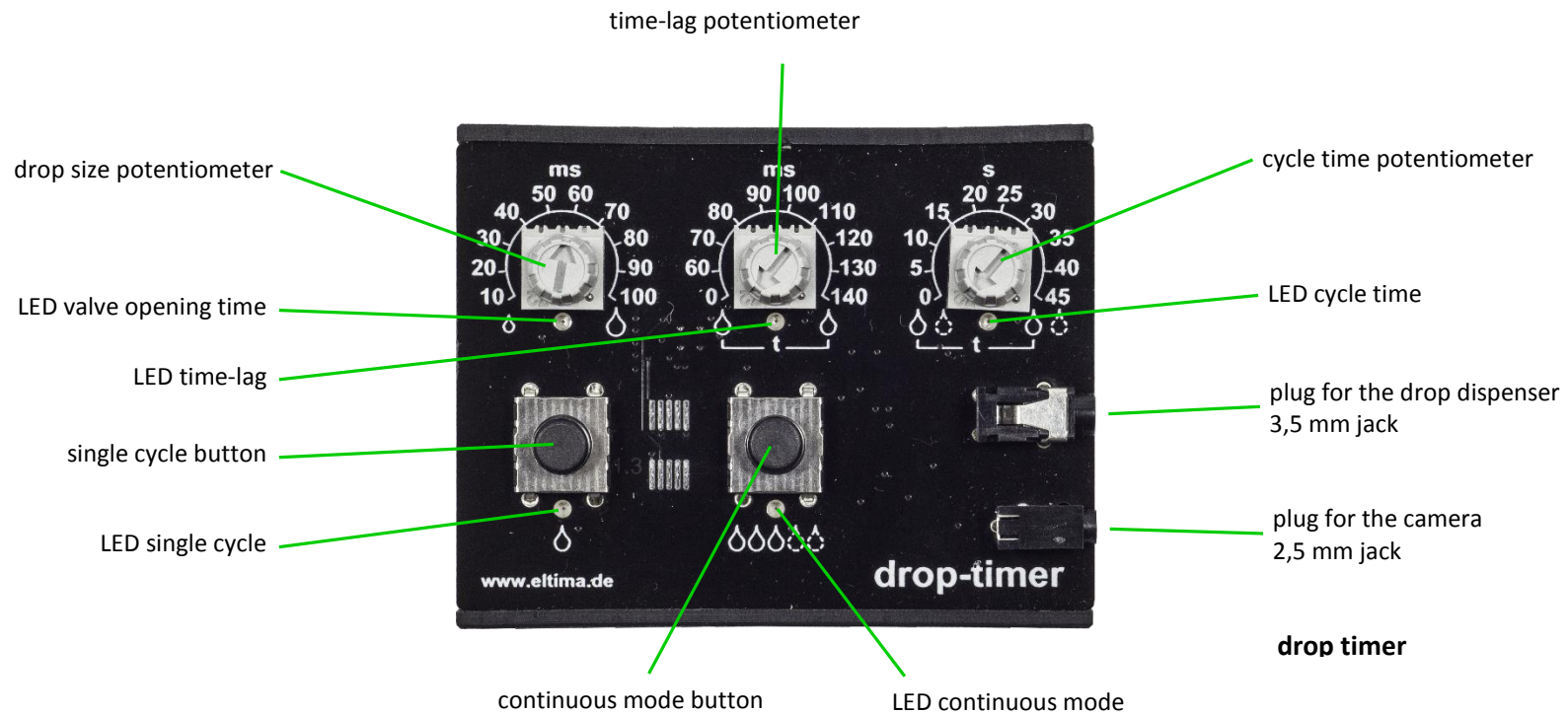


# User Manual drop-timer

Status: 12.2015



Description of components



connection cable  
3,5 mm jack

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## Introduction

Dear customer,  
thank you for purchasing our drop timer. Developed and produced with great care, it shall be a reliable tool for you.

Please do not hesitate to contact us if you should miss anything or have further improvement proposals. This way the product will be able to develop to fully meet your requirements.

Please read this manual carefully before using the drop timer, to get familiar with the system and its functions.

## Intended purpose

The eltima drop timer was developed to control the eltima drop dispenser, item nr. 50049. Use it only for this purpose!

## Symbols



Tips concerning the handling of the device.



Important notices on the function of the device.




Important notices to prevent damage of the device or connected devices.

## Maintenance and storage

- The drop timer is not waterproof. Never use use in rain nor under water. Please contact the manufacturer immediately in case it should get wet. Water drops can be wiped off with a dry cloth.
- Never drop the device or its components or expose it to severe impacts.
- Do not attempt to make any technical modifications to the electrical circuitry.

## Connecting the drop-timer

- Install the eltima drop dispenser as described in its user manual.
- First plug one end of the connection cable into the connection jack of the drop timer.
- Then plug the other end of the connection cable into the middle jack of the drop dispenser's adapter board.
- Connect your camera to the **drop-timer** by using the 2.5 mm jack plug.

 **Note:** The 2.5 mm connection cable included in the scope of delivery of the drop dispenser is not used here.

- Ready

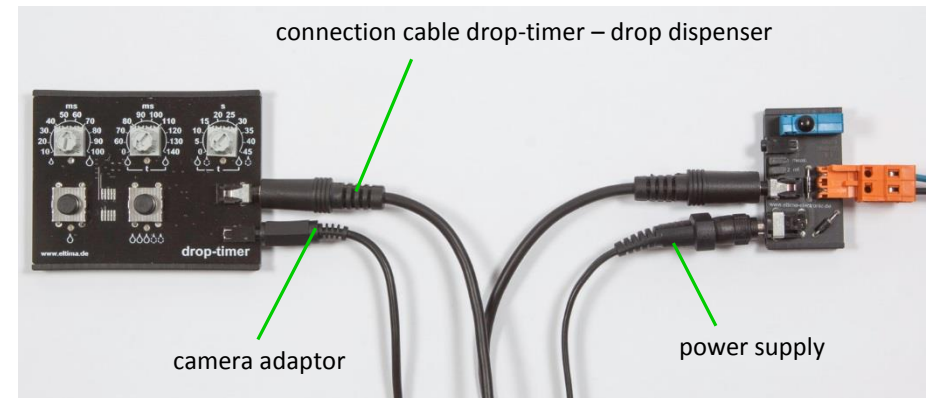


Figure 1: connecting the drop-timer

## Functional principle and setup

The **drop-timer** was designed for an affordable entry into the world of drop photography. It allows an accurate control of one eltima drop dispenser and also the release of one camera.

It has three potentiometers: one for setting the drop size, one for the lag time between two drops, as well as a cycle time. The left button starts a single sequence for generating one or two drops, the right one starts or stops the continuous mode.

Build your setup like depicted in Figure 2.

When pushing the single cycle button the valve will open for the time set by the drop size potentiometer. At the same time, the camera will be released. The shutter speed of the camera should be set to a  $\frac{1}{2}$  second. The generated drop falls through the barrier. The light barrier will fire the flash after the lag time set by the barriers potentiometer. The flash will fire into the opened shutter of the camera and the picture is taken.

In this setup the camera and the flash will be released separately from each other. The only “link” between them is the water drop.

The big advantage of this setup is to walk around the fluctuations of the lag time of the camera, which can be much bigger than the life time of certain “sculptures”. The setup guarantees a very high reproducibility and a steep learning curve.



Figure 2: schematic view of the setup



### Alternative setup

An alternative setup is shown in Figure 3. This one seems to be easier to build up, but it accepts the disadvantages of the fluctuation of the cameras lag time.

In this setup the **drop-timer** will control the drop dispenser solely. The camera will be released by the light barrier which fires the flash.



Figure 3: alternative setup

## Generating drops

### Single drops

- Set the desired drop size with the left potentiometer, e.g. 40 ms.



The longer the time, the bigger the drops.

- Set the middle potentiometer to zero.



The setting of the right potentiometer doesn't matter in this setup.

- Press the single cycle button shortly. The valve will open for the time set and generate a drop of according size. The LED for the drop size will be on during the activation of the valve. At the same time the LED for the single cycle will be on.

### Drop collisions

- Set the drop size with the left potentiometer
- Set the time lag between the drops with the middle potentiometer.



Although the range of the middle potentiometer starts with zero, the shortest time period you can choose is 60 ms. In order to make sure that only one drop is released, settings below this value will be considered as zero.



The setting of the right potentiometer doesn't matter in this setup.

- Press the button for the single cycle shortly. The valve generates the first drop and after the set time lag the second one. The LED for the drop size will be on each time throughout the switch-on time of the valve. The LED for the drop distance will be on within the pause between the two drops. The LED for the single cycle will be on throughout the whole cycle.



The perfect time lag between two drops in order to generate drop collisions (leading to the shape of an umbrella) must be determined experimentally. It depends, among other things, on the drop size, the height of fall, the viscosity or the surface tension of the used fluid.



## Continuous mode

Due to the precision of the system, made up of the drop timer, drop dispenser and light barrier, the general form of the generated crests, pillars, umbrellas etc. will be fairly much the same for each release.

Nevertheless there will be differences in the filigree structure of the generated forms that will also be highly important for the attractiveness of the picture.

As soon as you have found a setting that is generally fitting, the system can be set into a continuous mode. Using the right potentiometer, one can set a time period for the whole cycle in seconds. The latter should be chosen in such a way that there is enough time for the fluid in the bowl to calm down after each drop or drop on drop, so that the surface is totally smooth again before the next drop is released. This time period may take several seconds, depending on the surface of the bowl.

In order to start the continuous mode, press the button for continuous mode.

Throughout the continuous mode the LEDs for drop size and distance will be on as described above. The LED for the cycle time will be on throughout the pauses between the single cycles. The LED for the continuous mode indicates that this mode of operation is active.

To stop the continuous mode, press the button for the continuous mode again when the LED for the cycle time is on.

## Specifications

### Type

Microcontrolled timer for eltima drop dispenser

### Physical dimensions

L x B x H [mm]: 75 x 59 x 18

### Weight

100 g

### Power supply

12 V, supplied by the eltima drop dispenser

### Power consumption

max. 100 mW

### Settable times

drop size [ms]: 0 bis 110

time lag between two drops [ms]: 60 bis 150

cycle time [s]: 0 bis 48

### Operating modes

single cycle

continuous

### Scope of delivery

drop-timer

connection cable 3.5 mm jack, 2.5 m

Notes

## Directions for disposal

Old electric devices do not belong to domestic waste!  
Electrical- and electronic devices must be separated from domestic waste before disposal, according to policy 2002/96/EG and national law. They have to be disposed at government certified waste disposal sites. This may be done by returning the old device where you are buying a new one or by dispensing the waste at authorized collecting points for the recycling of electro- and electronic devices.



Inappropriate handling of old electronic devices can be harmful for health and environment. By means of appropriate disposal of electronic products you make an important contribution towards an effective use of natural resources.

### **Do not dispose of batteries and accumulators in domestic waste!**

As final consumer you are legally bound to return batteries and accumulators. Return these to collection points that are subject to public law or to places where batteries or accumulators are sold. Here batteries and accumulators can be returned for free.



light barriers for photography

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