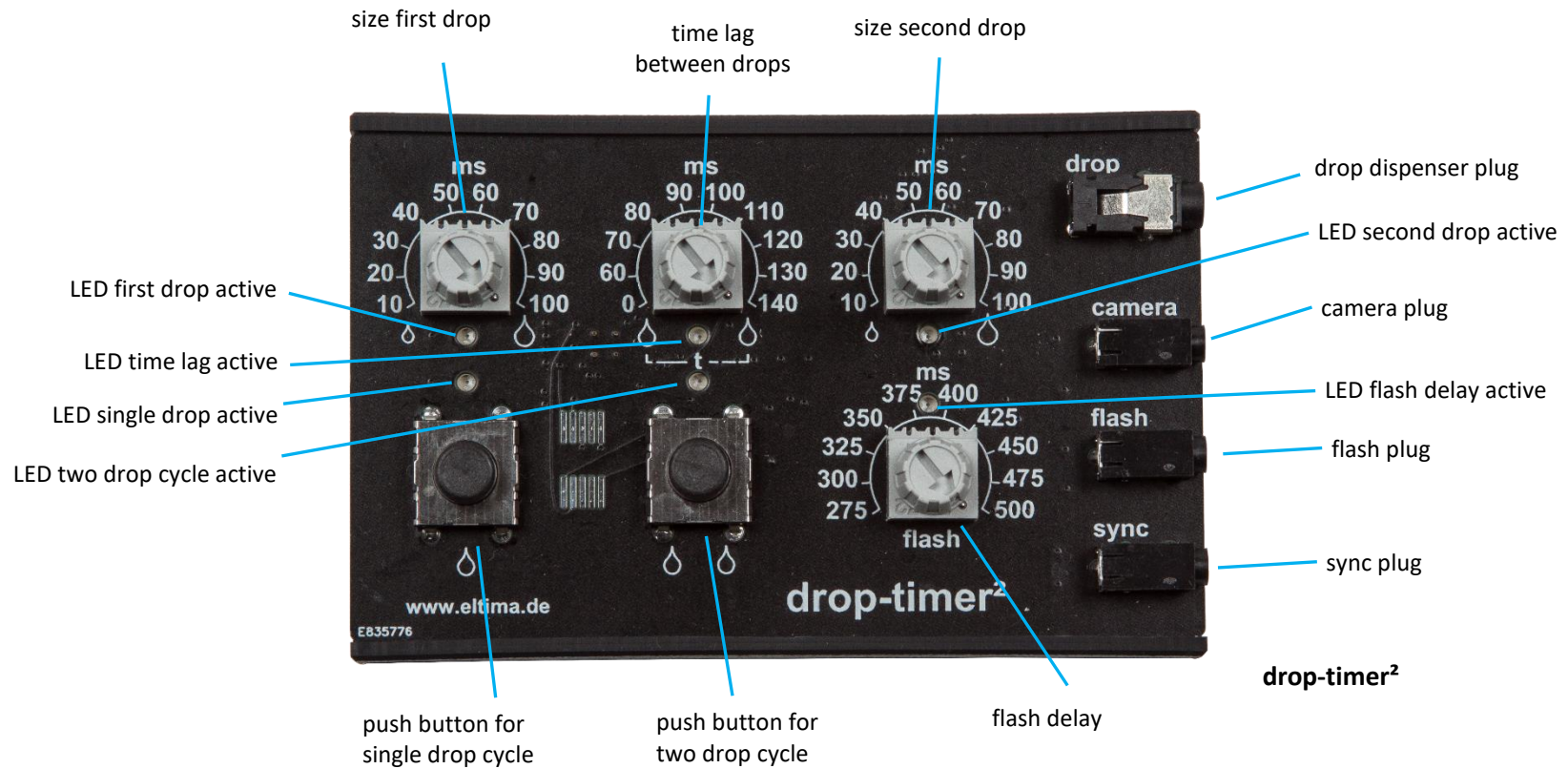


user's manual drop-timer²

Version: 4.2017



Components guide



connection cord
3,5 mm jack

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Introduction

Dear customer,

thank you for purchasing our **drop timer²**. 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 timer²**, to get familiar with the system and its functions.

Intended use

The eltima **drop-timer²** was developed to control the eltima drop dispenser, item nr. 50049, one camera and one or more flashes. 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-timer²** is not waterproof. Never 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-timer²

- Install the eltima drop dispenser as described in its user's manual and connect the power supply.
- First plug one end of the 3.5 mm jack connection cord into the "drop" plug of the **drop-timer²**.
- 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 "camera" plug with a camera adapter set suitable for your camera.
- Connect your flash(es) with one or more flash adapter sets to the "flash" plug.



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

- Ready



Never connect any plug of the drop-timer² to the plug for the Joker² system of the drop dispenser adapter board! See Figure 1. The device can be seriously damaged!

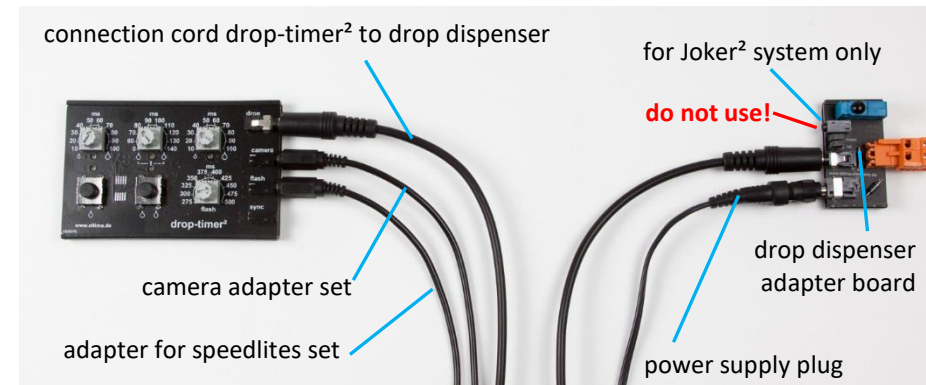


Figure 1: connecting the drop-timer²

Functional principle and setup

The **drop-timer²** was designed for a reasonable entry into the world of drop photography. It gives an accurate control of one eltima drop dispenser, as well as the release of one camera and one or several flashes.

The size of the drops, the lag time between them and the flash delay time can easily be set by four potentiometers. The cycles are time controlled, hence no light barrier is needed to detect the falling drop.

Single drops, for crowns or pillars, can be released by pushing the single drop cycle button. The two drop cycle button releases two drops for drop collisions, like shown in [Figure 2](#).

The setup and the connections are made according to [Figure 2](#). The drop dispenser can be fixed weather on our carrier for experimental photography [#50050](#) or on any other carrier. The camera and the flashes can be set up as desired.

By pushing e.g. the button for the two drop cycle, the valve opens for the first drop. Simultaneously the camera will be released and the flash delay time begins to run. The shutter speed of the camera must be set to $\frac{1}{2}$ seconds. After the first drop is released the system waits for the time lag between drops to pass. Then the valve opens for the second drop. At the end of the flash delay time, the flash fires and picture is captured.

Due to the separated release of the camera and the flash the effects of the variation of the lag time of the camera are bypassed. The setup gives a huge reproducibility of the results, which guarantees a steep learning curve.



You will find more about drop photography with **drop-timer²** on our site „All the tricks“.

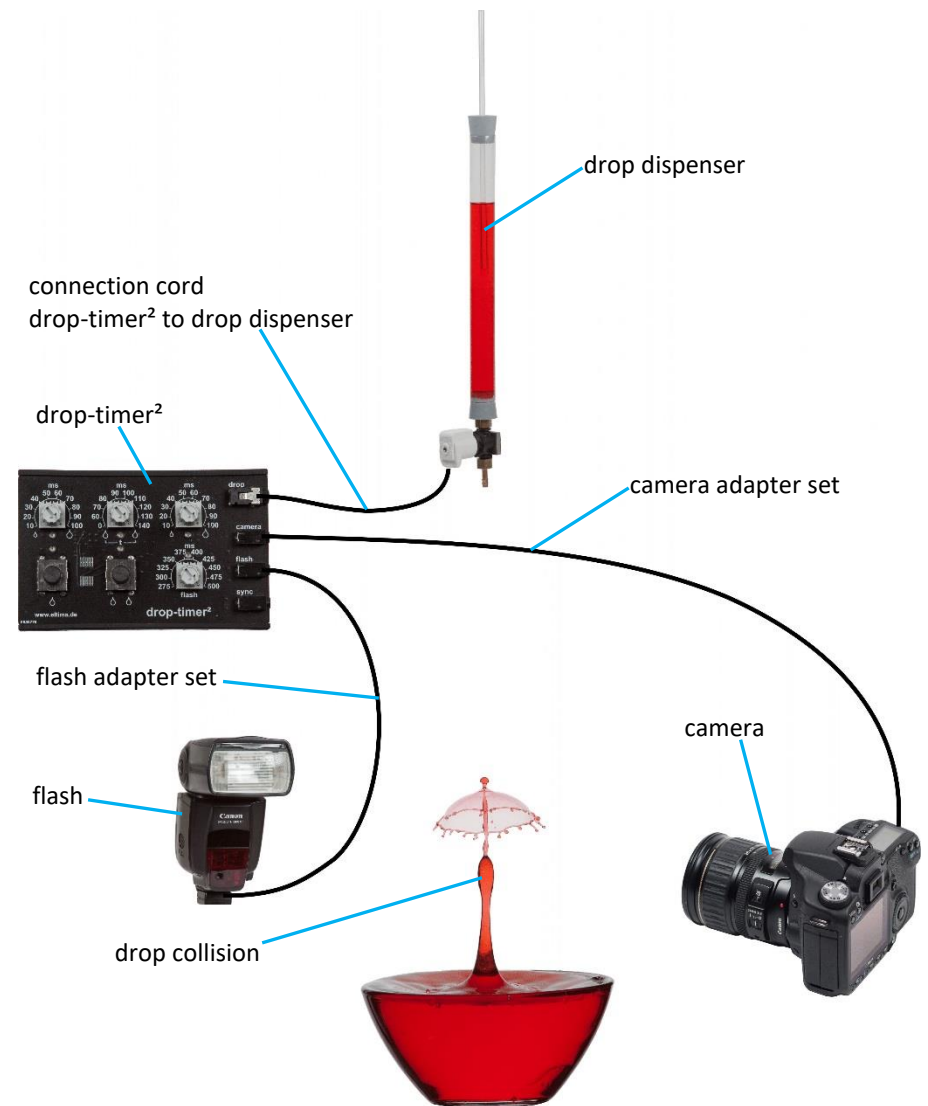


Figure 2: schematic view of the setup

Generating drops

Single drops

- Set the first drop size to the desired time, e.g. 40 ms.



The longer the time is set, the bigger are the drops. Above a certain opening time, which depends among others on the viscosity of the fluid used, more fluid will come than a single drop can hold. This results in two drops, falling down at a certain distance.



The positions of the middle and right potentiometer doesn't matter in this mode.

- Briefly press the single cycle button. The valve opens for the set time and releases a correspondingly large drop. The LEDs for the first drop, single cycle and flash delay will light up.

This mode can be used to photograph crowns, but also to find and adjust the optimal column for drop collisions.

The optimum triggering time for the flash is determined with the potentiometer for the flash delay.

The values for the drop size and flash delay are both determined experimentally.

Drop collisions

- Use the left potentiometer to set the desired time for the first drop.
- Use the center potentiometer to set the time lag between the drops.
- Use the right potentiometer to set the desired time for the second drop.
- Use the potentiometer for the flash delay to set the desired time.
- Briefly press the two drop cycle button.

The valve opens for the first drop and after the set lag time for the second one. The various LEDs light up during the phases which indicate them.



The values for the individual times must be determined experimentally. They depend, among other things, on the drop height, viscosity, hardness of the dripping liquid, but also on the desired drop sculpture.




You will find more about drop photography with **drop-timer²** on our site „All the tricks“.

Synchronization of several drop-timer²

To create multi-color drop collisions, several **drop-timer²** can be connected and synchronized.

Two **drop-timer²** can easily be connected using a connection cord like our item [#50020](#). *Figure 4* shows the interconnection, for the sake of simplicity, without the rest of the cables, which are, of course, required for the function.

 Before synchronizing two drop-timer² make sure that each of them works properly and the polarity is correct!

Several **drop-timer²** are synchronized as shown in *Figure 5*. With a Y-connector the signal is distributed to the next **drop-timer²**. This ensures that the set times start all at the same moment.

The procedure is explained using the example of a multicolor drop collision, as shown in *Figure 3*. Three **drop-timer²** and drop dispensers with the colors green, red and blue were used here.

When working with several **drop-timer²** it is important to define one of them as master. At best, the one which controls the first action. In our example it is the one with the green drop dispenser.

On the "master" **drop-timer²** the potentiometer for the first drop is used to set the time for the green drop that generates the column. The potentiometers for the time lag and the second drop size are set to zero, as further drops are released by the other drop-timers.

On the **drop-timer²** for the red drop, the potentiometer for the first drop is set to zero. The potentiometers for the time lag and the second drop are adjusted in such a way that the red cap is produced.



Figure 5:
Multicolour drop collision

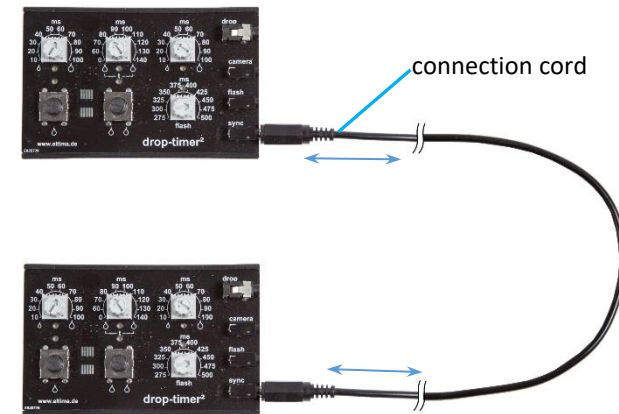


Figure 3: Synchronization of two drop-timer²

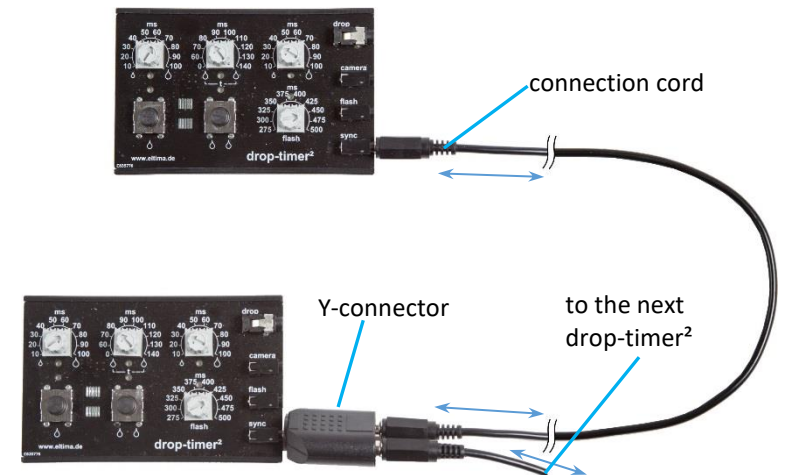


Figure 4: Synchronization of several drop-timer²

The same is true for the **drop-timer²** for the blue drop. Because the blue drop has to fall slightly later than the red one, the lag time is set accordingly longer.



You will find more about drop photography with **drop-timer²** on our site „All the tricks“.

Specifications

Type

Microcontroller based timer for eltima drop dispensers

Dimensions

L x W x H: 92 x 59 x 18 mm

Weight

120 g

Power supply

12 V; from the eltima drop dispenser

Ranges

Size first drop: 0 bis 110 ms

Time lag between drops: 60 bis 150 ms

Size second drop: 0 bis 110 ms

Flash delay: 275 bis 500 ms

Operating modes

Single drop cycle

Two drop cycle

Scope of delivery

drop-timer²

Connection cord 3.5 mm jack, length ca. 2.5 m

Notes

Disposal of electronic devices

Electrical and electronic equipment must be disposed of, in accordance with Directive 2002/96 / EC and national laws, separately from the general household waste. This can be done by returning the product to an authorized collection point for the reprocessing of electrical and electronic equipment.

Improper handling of old equipment can have harmful effects on human health and the environment. By properly disposing of this product, you make an important contribution to the effective use of natural resources.



Do not dispose 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.



High-Speed for Photography

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