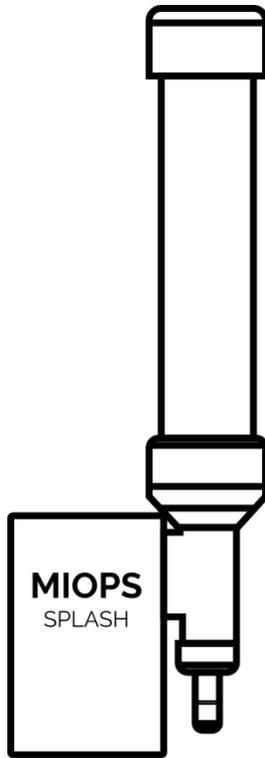# MIOPS Splash

User Manual

Firmware Version: 1.0

App Version: 2.6

Document Version: 1.0.0

Release Date: January 21st, 2018

1. Introduction

Thank you for choosing MIOPS SPLASH. MIOPS is revolutionary photography equipment, which combines power of electronics with the flexibility of smartphone platform. It will deliver high performance with reliable and easy operation. MIOPS is always open to new features with the upgradeable firmware. On top of that, the dedicated smartphone application is open to unlimited options. With every version of the app, you will get new features. In other words, MIOPS is a platform for high-speed photography rather than a gadget with firm capabilities.

This document will be your reference for the overall operation of MIOPS Splash including the app. Please note that the document can be out of date with the release of new app and firmware version. You can get the latest version of this manual from our website www.miops.com. You can see the version of the firmware and app this document refers to, in the cover page of the document.

This manual includes the information you need to use MIOPS Splash with all features, so please read it carefully before using it. You can check the FAQ section to find answers of some common questions. If your question is not listed, please contact us.

Thank you very much again for choosing MIOPS. We hope that MIOPS Splash will help you to bring your photography skills to the next level.

2. Specifications

Valve Button
Power LED
On/Off Switch
Camera Output
Flash Output
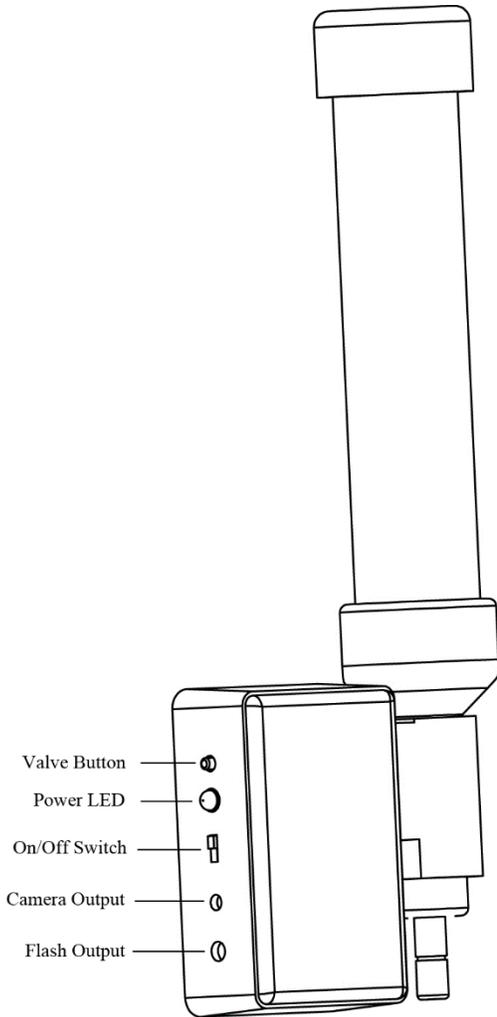
Tube Length: 17 cm

Tube Diameter: 3.2 cm

Battery: 12V 23A Alkaline Battery

Bluetooth: Bluetooth 4.0 (Low Power)

Valve Button: Releases the valve

Power LED: Indicates the power status

On/Off Switch: Controls the power

Camera Output: Connects to the camera

Flash Output: Connects to the flash

3. Smartphone App

The smartphone app is the dedicated interface to configure and control your MIOPS Splash. It is available on iOS and Android platforms. You will receive software updates over AppStore and Android Market. The iOS version must be 7.0 or higher. The Android version must be 4.3 or higher. The communication between the smartphone and MIOPS is done over Bluetooth connection. Your smartphone has to be compatible with Bluetooth 4.0.

The app name is MIOPS Mobile on AppStore and Android Market. You can download and install it from the repositories just like any free app. There is no registration needed to use the application. If your smartphone version is compatible, you can install it to your phone by following the regular app install procedure.

3.1. Using the App

You can use the app to change the parameters of the shooting. In order to do that, start the MIOPS Mobile app. On the initial screen of the app, you need to select the MIOPS Splash. The app is also compatible with MIOP S Mobile Remote and MIOPS Mobile Dongle. Swipe the screen to the right or left until you see the MIOPS Splash icon on the screen. You can touch the icon to proceed.

4. Initial Setup

The hardware setup of MIOPS Splash requires some equipment. You need the following items to use the MIOPS Splash with the highest efficiency: a sturdy desk, a camera on tripod, a high-speed flash on tripod, a MIOPS Splash with special holder arm.

First off all, you will need to work in a dark room. It has not to be completely dark; allowing an exposure of a few seconds to the camera is a good indicator to describe what you need. MIOPS Splash has to stand perfectly still when you are shooting. Otherwise consequent drops will not hit each other. If you have bought the special holder for MIOPS Splash, you can use it for that purpose. Otherwise you need to find a suitable handle of tripod for that.

You can prepare your setup either on the floor or on a desk. If you are working on a desk, please make sure that it does not vibrate. A vibrating base can cause a blurry image. It will affect the quality of the picture directly.

You can refer to the following drawing for a sample setup. In this setup, MIOPS Splash triggers both the camera and the flash. Your setup may be different than this one.
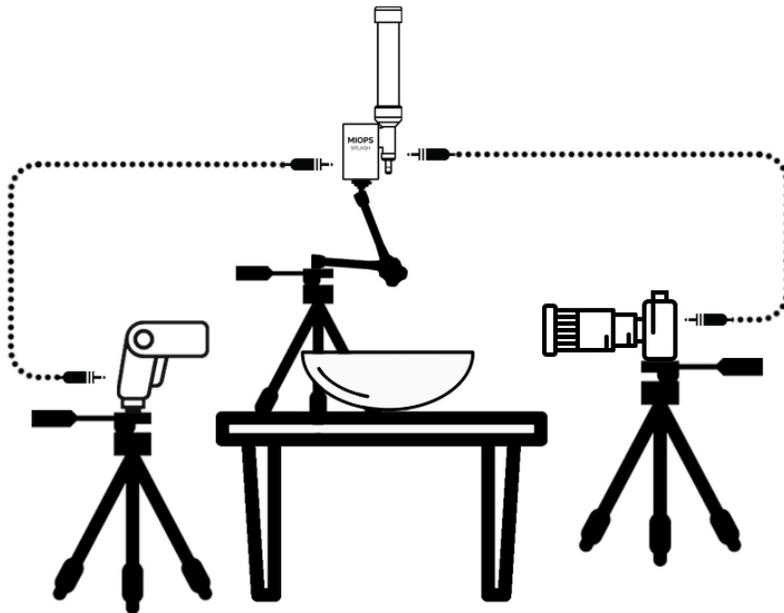

Figure 1: Sample Setup

4.1. Filling the Fluid into MIOPS Splash

MIOPS Splash is designed to be used with nonabrasive fluids only. If you use it with abrasive fluids, you can damage the pipe and the valve. You should also never use flammable fluids with it. It is not designed to work to work with very thick fluid either. You should only use water based solutions.

In order to fill the tube of MIOPS Splash, first remove the cap on the top. The cap has no threads; you can remove it by pulling it out gently. As you are removing the cap make sure not to bend the tube.

You can pour the fluid from the top of the tube. Leave about an inch of gap from the level of the cap. Then you can put the cap and close the tube. As you put the cap back, do not cover the hole in the cap. Otherwise, you can build up a pressure in the tube and fluid can squirt. Also, pushing the cap too fast can cause some squirting as well.

CAUTION: MIOPS Splash is designed to work with water based fluids only. Using abrasive and flammable fluids can cause severe damage and hurt you. It is your own responsibility to wear protective glasses as you are working with MIOPS Splash.

Once you have filled the main tube with fluid, there might be some air trapped inside the thinner tube. In order to evacuate the trapped air, switch the MIOPS Splash on and press the valve for a few seconds repeatedly. This will let some fluid from the valve out, so be prepared for it.

4.2. Plugging the Connection Cables

MIOPS Splash has two output ports to trigger your camera and flash. You can only trigger one of them at a time. You can select which one to trigger from the smartphone app. You can see below three different options of camera, flash and MIOPS Splash setup.

4.2.1. Triggering the Flash

Triggering the flash is the recommend method of taking splash photos. With this method, you can eliminate the shutter lag of the camera by simply keeping the shutter of the camera open. In order to do this, the room must be dark enough to allow an exposure of a few seconds. The flash connection cable is a standard PC Sync cable. It connects to the PC Sync port of your flash to the MIOPS Splash. If your flash does not have PC Sync port, you can use a hot shoe adapter for this purpose.
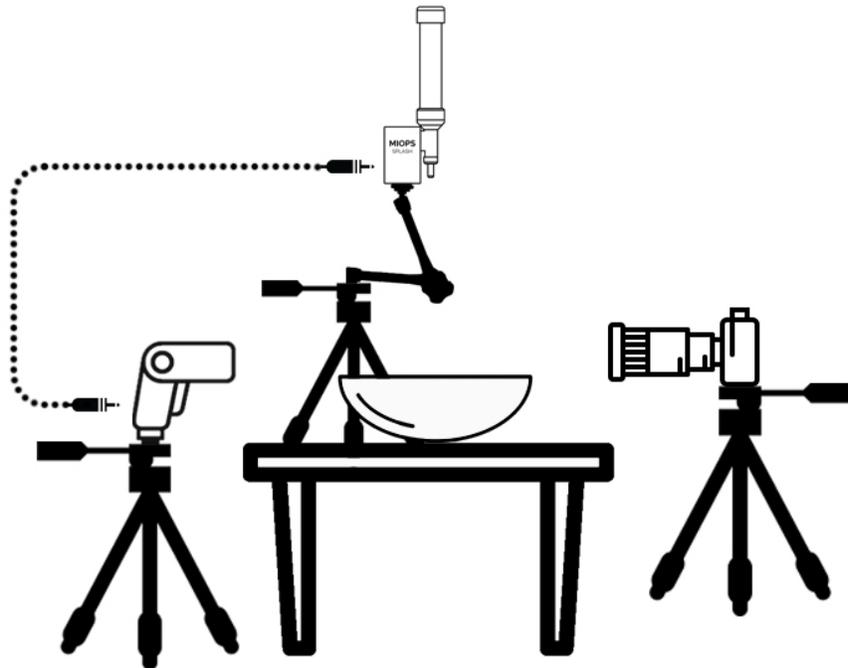

Figure 2: Flash Cable Connection

You can execute the following steps to shoot in this mode:

- Plug the flash connection cable to the Flash Output of MIOPS Splash.
- Plug the flash connection cable to the PC Sync port of the flash or flash adapter.
- Place the flash on a tripod and set it to the lowest power setting.
- Place your camera on a tripod.
- Adjust the height of the MIOPS Splash kit and align it with the center of the bowl.
- Turn on the Bluetooth of your smartphone.
- Open the MIOPS Mobile App and select the Splash mode.
- Connect to the MIOPS Splash unit.
- Set the duration for the first drop (in millisecond).
- Set the duration of the second drop (in millisecond).
- Set the delay parameter of the second drop. This is the delay between the first and second drop.
- Set the trigger device parameter to flash.
- Set the delay for the trigger of the flash.
- Turn your camera on set it to BULB mode.
- When you are ready, press the shutter button of the camera.
- Press the "Start" button on the app.
- When the MIOPS Splash fires the flash, press the shutter button again to close the shutter.

With this setup, MIOPS Splash will dispatch two drops sequentially. As the second drop will be released with a delay, the second drop will hit the bouncing first drop. This will create a collision effect in the picture.

If you don't want to send the second drop, just set it's duration to zero. In such a case only the first drop will be sent.

4.2.2. Triggering the Camera and the Flash

In the previous setup, the camera was fired by the photographer with an exposure long enough to capture the collision. This means the camera has to be either in BULB mode or the exposure time must be long enough to capture this.

To trigger the camera automatically as well, you can connect your camera to the MIOPS Splash as well. In this case, MIOPS Splash will trigger the camera just before the drops and it will close the shutter after the action. In order to achieve this, you have either to set the camera to BULB mode or you need to select a long enough exposure time.
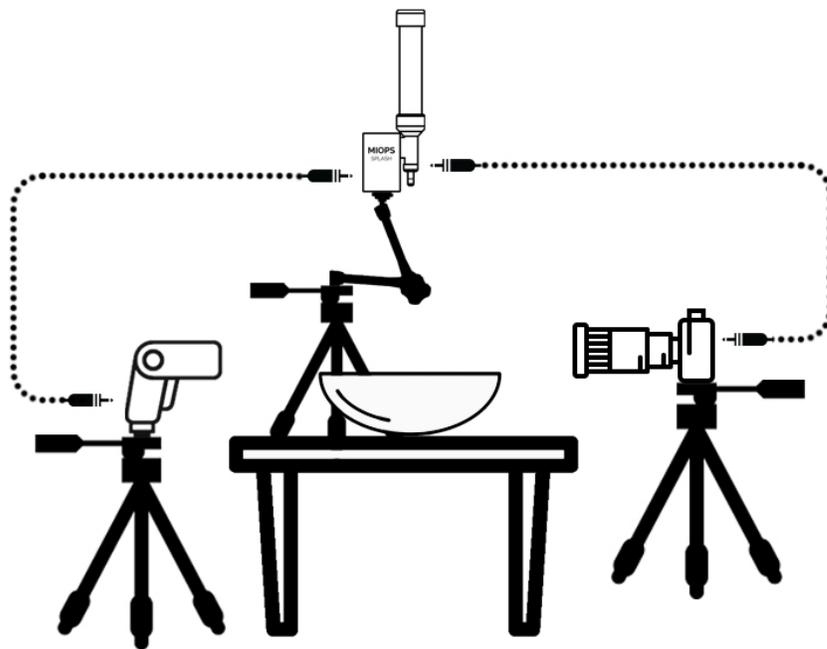

Figure 3: Flash and Camera Cable Connection

In order to use this mode, you can follow these steps:

- Plug the flash connection cable to the Flash Output of MIOPS Splash.
- Plug the flash connection cable to the PC Sync port of the flash or flash adapter.
- Place the flash on a tripod and set it to the lowest power setting.
- Plug the camera connection cable to the Camera Output of MIOPS Splash.
- Pug the camera connection cable to the Shutter Release port of your camera.
- Place your camera on a tripod.
- Adjust the height of the MIOPS Splash kit and align it with the center of the bowl.

- Turn on the Bluetooth of your smartphone.
- Open the MIOPS Mobile App and select the Splash mode.
- Connect to the MIOPS Splash unit.
- Set the duration for the first drop (in millisecond).
- Set the duration of the second drop (in millisecond).
- Set the delay parameter of the second drop. This is the delay between the first and second drop.
- Set the trigger device parameter to flash.
- Set the delay for the trigger of the flash.
- Turn your camera on set it to BULB mode or an exposure of a few seconds.
- Press the "Start" button on the app.

This setup will trigger the camera and the flash automatically to avoid manual work during the shoot. It will enable you to get the consistent results. You will just need to play with the delay parameters and MIOP Splash will take care of the rest.

4.2.3. Triggering the Camera

You can also just trigger the camera if you want. This setup can be useful if you are working in a bright environment where you want to freeze the action just with the shutter of your camera. You can also connect a flash to your camera if you wish.
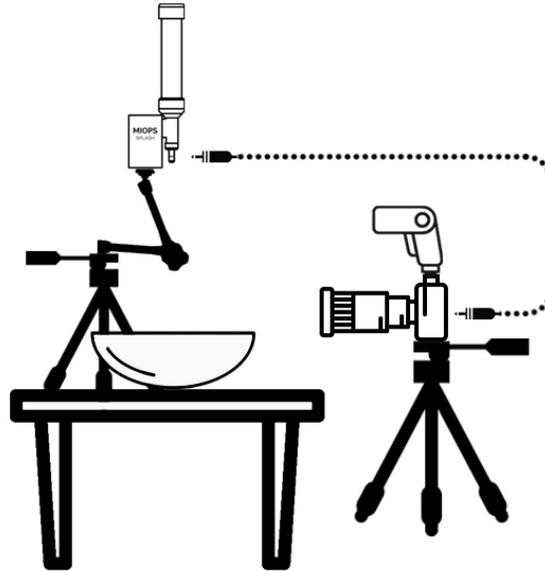

Figure 4: Camera Cable Connection

You can follow these steps to shoot in this mode:

- Place your camera on a tripod.
- Adjust the height of the MIOPS Splash kit and align it with the center of the bowl.
- Turn on the Bluetooth of your smartphone.
- Open the MIOPS Mobile App and select the Splash mode.
- Connect to the MIOPS Splash unit.
- Set the duration for the first drop (in millisecond).
- Set the duration of the second drop (in millisecond).
- Set the delay parameter of the second drop. This is the delay between the first and second drop.
- Set the trigger device parameter to camera.
- Set the delay for the trigger of the camera.
- Turn your camera on and press the "Start" button on the app.

4.2.4. Focusing the Camera

In order to get the best results, put your camera and lens into manual focus. This will avoid the focus delay and will help you to capture the action.

In some cases, it might be difficult to set the focus of the camera as the area is just water. In order to focus the camera properly, you can keep a solid item into the bowl and adjust the focus of the camera.

5. Smartphone App

You will need the smartphone "MIOPS MOBILE" to use the MIOPS Splash. You can download and install the app from the App Store or Google Play Market. The app is free on both versions. You will need a smartphone with Bluetooth 4.0 capabilities.

The smartphone app starts with a selection screen. On the initial screen, you can choose one of the three different modes: MIOPS Mobile Dongle, MIOPS Mobile Remote, and finally MIOPS Splash. You can swipe the screen using the right and left arrows to find and select the MIOPS Splash mode.

Once you have found the MIOPS Splash mode, touch the MIOP Splash icon and the Bluetooth connection screen will open. Here, your phone may ask you to turn the Bluetooth on. If you haven't done already, turn on the Bluetooth on your smart phone and go back to the app.

In this step, you should see the MIOPS Splash unit listed. If you cannot see it, touch the "Scan" icon on the right top corner of the screen. Your unit should be listed as available. Touch the listed name and the Splash menu will appear.
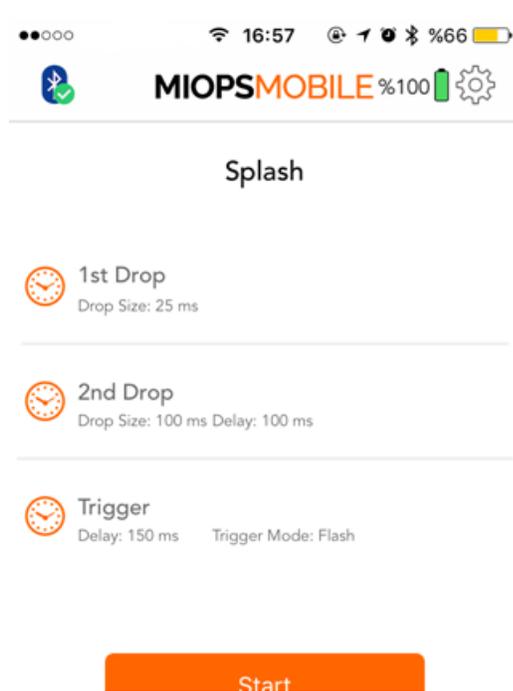

Figure 5: Smartphone App

The Splash screen is the main screen of the MIOPS Splash. You can see all of the parameters on this screen.

You can configure MIOPS Splash to release a single drop or two drops. The size of the drop is determined with the "drop size" parameter. The drop size parameter is in milliseconds. The longer duration, the bigger will be the drop. If you set the drop size too high, it can be a flow rather than a drop.

If you want a single drop only, you can simply set the drop size of the second drop to 0.

In order to change the parameters of a drop, just touch the line and a settings screen will open.

The parameter adjustment screen shows an orange circle. The parameters will be shown in the circle. In

order to change a parameter, you can simply touch it. After that a keypad will show up. You can enter the new value using the keypad. The keypad will close when you touch anywhere outside the circle.

If there is more than one parameter, you can select the parameter you want to change by swiping the circle to the right or left. You will see that there are two dots at the bottom of the circle. This means that there are two parameters to be adjusted.

If a parameter is just for switching between different modes, touching it will change the parameter. For the Trigger setting for example (3rd line), you can change the mode between camera and flash mode by touching it.

In order to save the parameter, you can either pull the notch at the top of the circle down or you can touch the save button.

6. Firmware Upgrade

MIOPS Mobile Remote has "Firmware Upgrade over the Air" capability. In other words, you don't need to make any cable connection to complete the firmware upgrade. You can follow these steps to complete the firmware upgrade of your MIOPS Mobile Remote.

Open the MIOPS Mobile app and go to the Settings screen. Select Check Firmware Upgrade. The app will connect to the server and check if there is a firmware upgrade available for your device. If a new version of the firmware is found, the app will notify you with a pop-up screen.
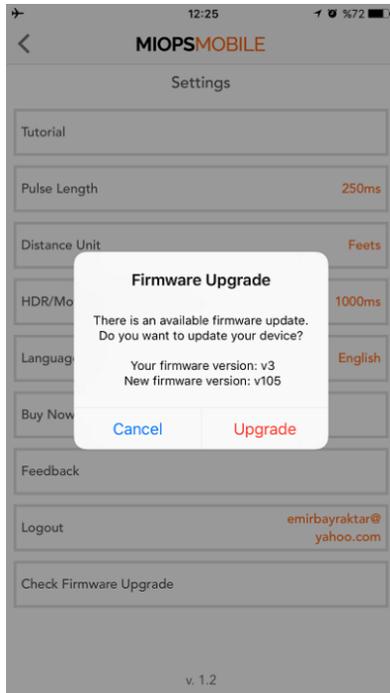
If you want to upgrade the firmware, touch the "Upgrade" button. At this point, the MIOPS Splash must be in "Firmware Upgrade" mode. In order to put MIOPS Splash into "Firmware Upgrade" mode, do the following:

- If it is turned on, turn it off.
- Press the Valve button and as it is pressed turn the MIOPS Splash on.
- The Status LED will glow GREEN.
- Your device is now on Firmware Upgrade mode.
- The app will discover your unit and it will connect to it.

You can complete the firmware upgrade by following the instructions provided by the app. If any error occurs during the firmware upgrade process, you will be notified with related information messages.

7. Battery Change

After some use (depending on how much you use it), you may need to change the battery. MIOPS Splash runs on a single 23A 12V Alkaline Battery. It is important that you use a compatible battery only. Otherwise, you can damage the unit.

In order to change the battery, turn it off first. Then remove the four Philips screws. Then you can take the bottom cover apart from the unit.
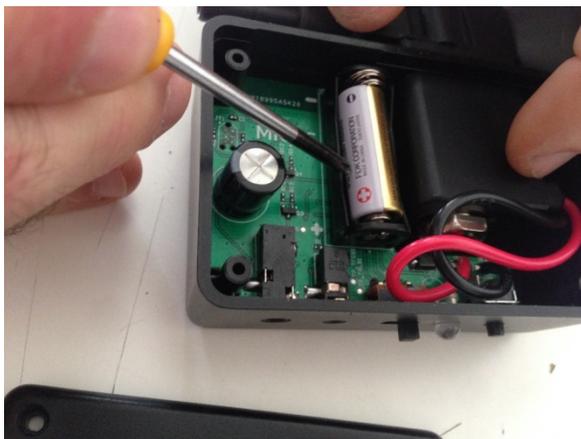
You can remove the battery with a flat head screwdriver. Be careful not to damage any component on the board. Put the fresh battery in by observing the battery polarity.

After that, you can put the back cover back on and tighten the screws with a Philips screw driver.

8. Warranty

MIOPS Splash comes with a one (1)-Year warranty against manufacturing defects. If you think that your unit is not working as it should, please contact us at info@miops.com with your purchase details.

The device is not water proof, so water damages are not covered. If you are using MIOPS Splash, make sure that you protect it from water. Do not drop MIOPS Splash as this can damage the PCB and electronics components inside. There are no user serviceable parts inside, so please do not disassemble the device.

9. Disclaimer

MIOPS Splash is not waterproof. It should be treated and handled with the care of a camera and should not be dropped and/or exposed to extreme heat or moisture.

We are not responsible for any direct or indirect damage and loss caused by the use of MIOPS Splash. Use it with your own responsibility