

# **en/WaypointAutomatic**

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# 1 Info

If you use a Shuttercable ([Link](#)) you can also trigger a camera with a push button or a 3-way switch on your transmitter.

## Tip

A description how to connect and trigger a camera with a Shuttercable you can find here: [ShutterCable](#)

A description how to connect and trigger a camera with a CamCtrl you can find here: [CamCtrl](#)

Also during a Way point flight you can automatically trigger your camera.

For this we need 3 things:

- Automatic
- Bitmaske (switching pattern)
- WP-Event

(The following settings are valid from SW version 2.00)

## 2 Automatic

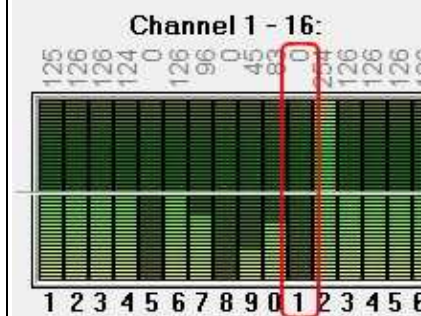
To trigger a Camera with a Shuttercable or an IR-Ctrl during a Way point flight, you have to activate the Automatic. This can be done with an 3-way switch or also with a push button.

### 2.1 Push button to trigger

If you use a push button to trigger the camera we have 2 positions =>

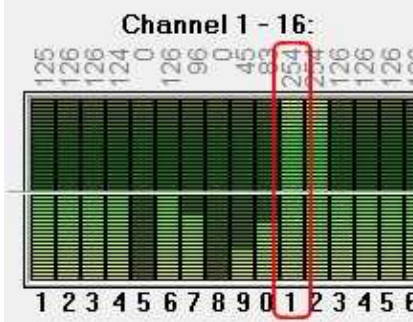


without activation = OFF (0)  
Camera will not trigger.  
(No triggering during a WP-Event)



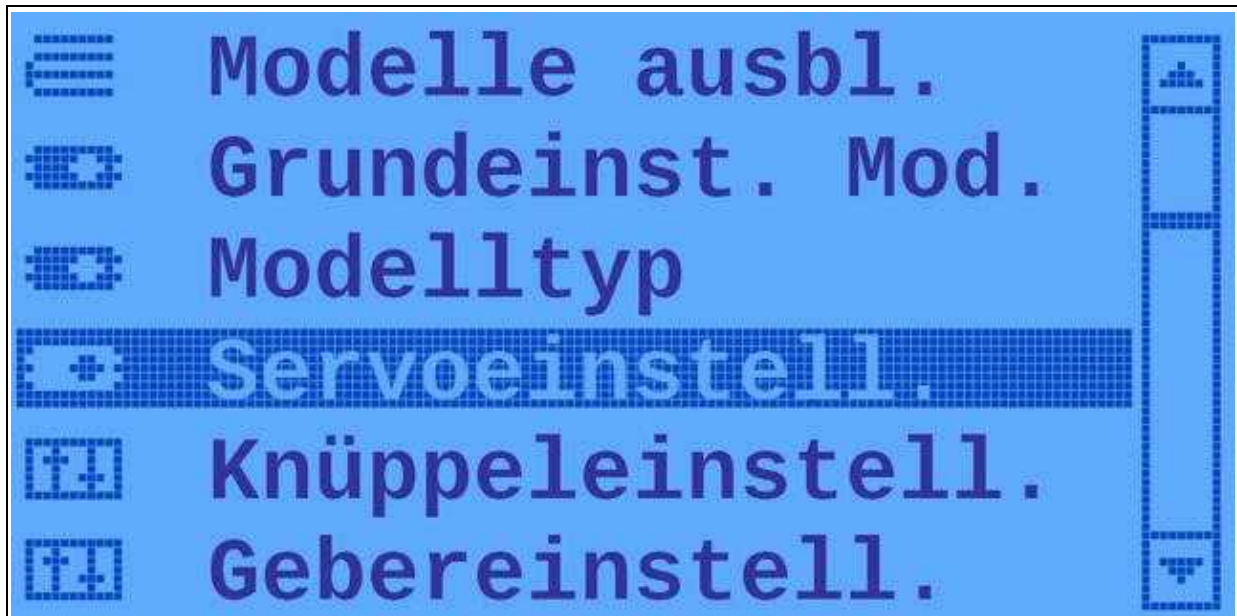


with  
activation =  
ON (254)  
Trigger the  
camera  
manually

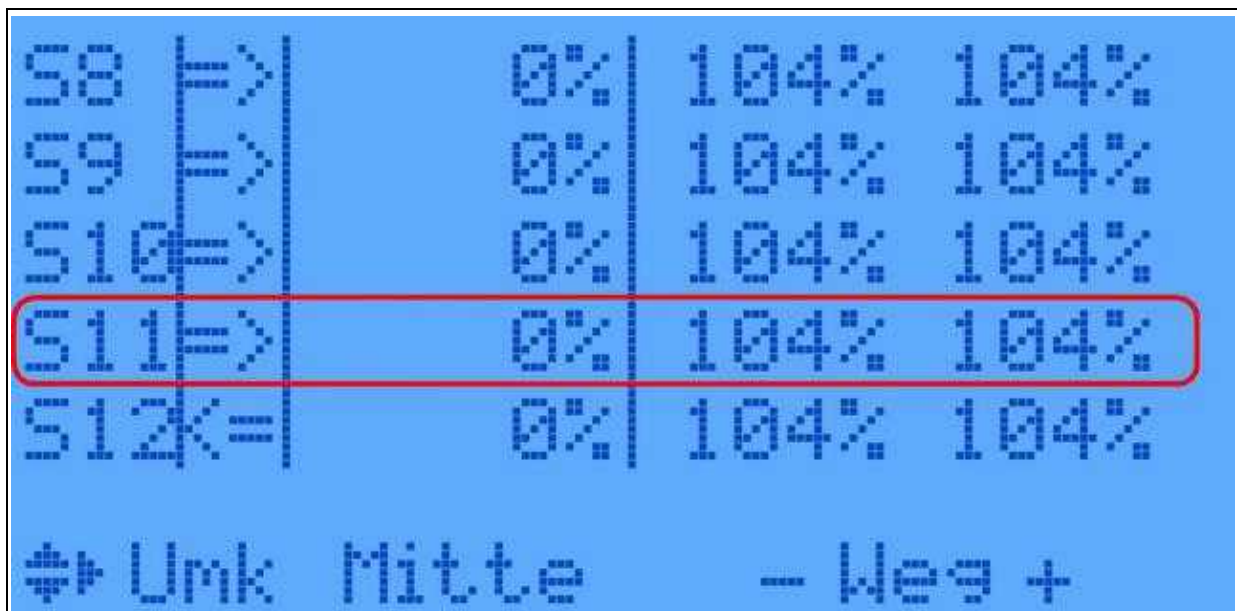


To use the Automatic during a Way point flight we have to change the settings for this channel on the transmitter. If you use e.g. a Graupner HoTT transmitter we find this setting under *Servo adjustment*: (in this example we use channel 11 to trigger the camera)

**1. Change to *Servo adjustment*:**



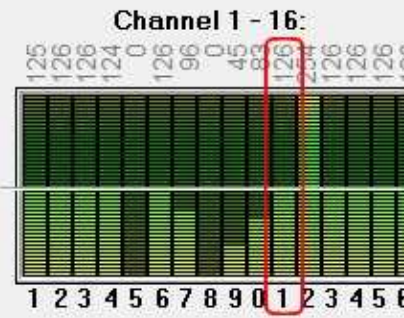
**2. Change the left servo travel of this channel from 104% ... to 0%:**



3. Now the Automatic is still activ.



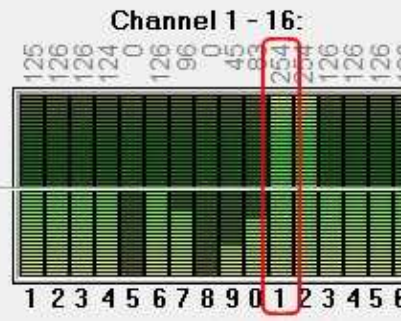
without activation = Automatic (126) Camera will not trigger. (Automatic triggering during a WP-Event)





push button  
Position - 2

with  
activation =  
ON (254)  
Trigger the  
camera  
manually





**Info**

The Automatic can be still ON. During a normal flight you will only trigger the camera when you push the button. During a Waypoint flight the camera will trigger automatically.

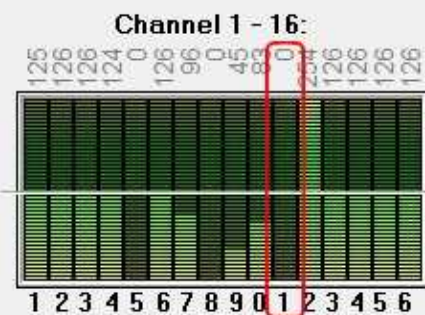
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## 2.2 3-way switch to trigger

If you use a 3-way switch to trigger the camera you can switch between OFF/Automatic/Trigger: (in this example we use channel 11 to trigger the camera)

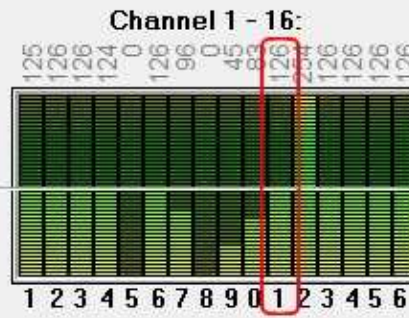


Position  
1 = OFF  
(0)  
Camera  
will not  
trigger



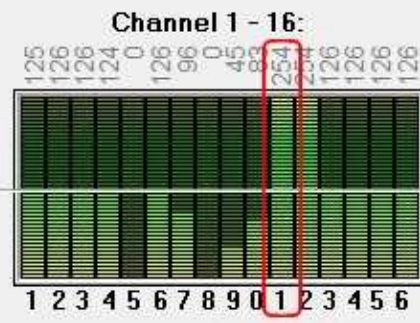


Position 2  
=  
Automatic  
(126)  
Camera  
will not  
trigger  
Automatic  
triggering  
during a  
WP-Event





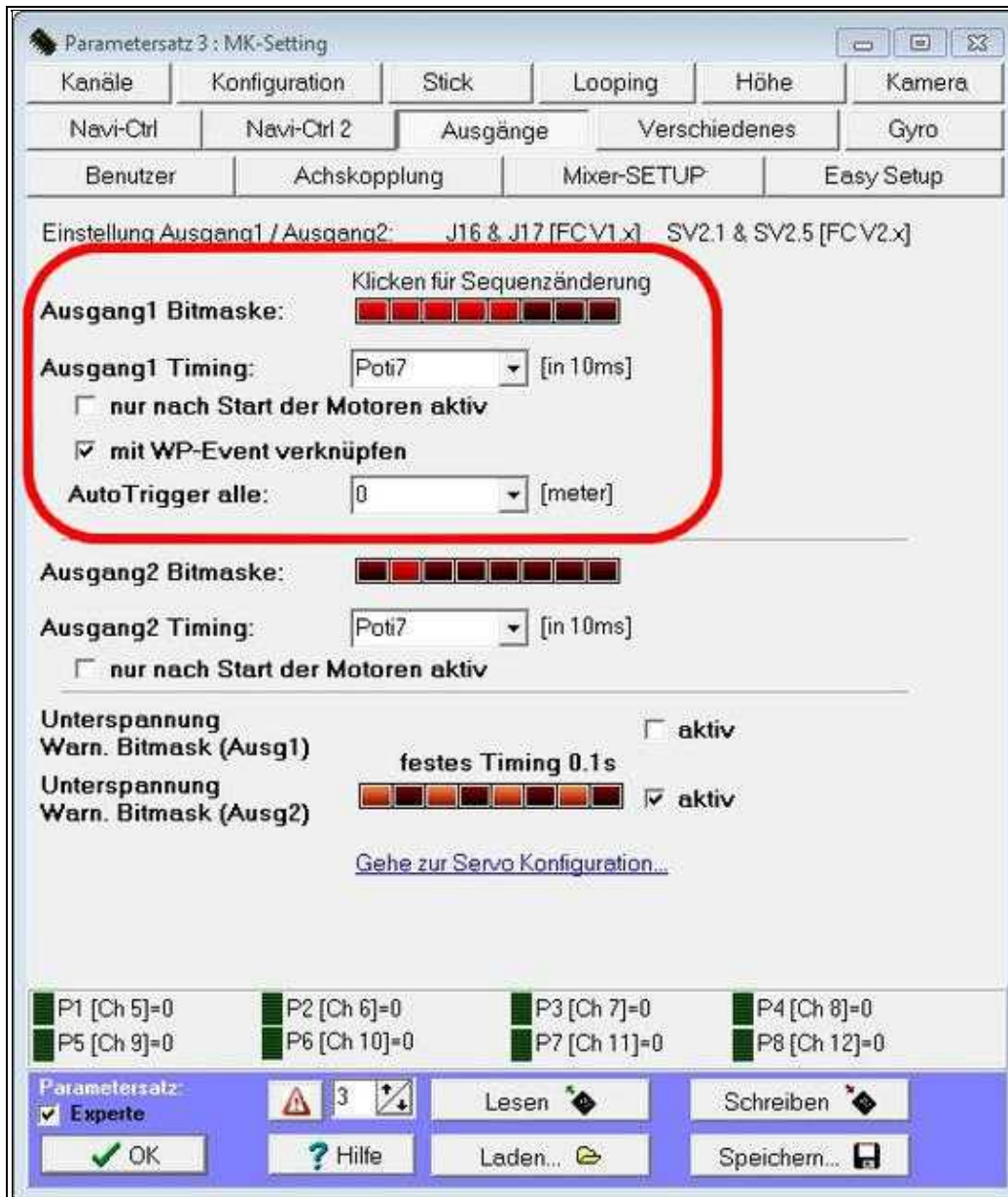
Position 3  
= An  
(254)  
Trigger  
the  
camera  
manually





### 3 Bitmaske (switching pattern)

In the settings of the [KopterTool](#) under *Output* you have to set::



- *combine with WP-Event*  
 Activate this. So "Out1" will work automatically during a WP-Event.

- *Out1 Bitmask*  
 This one determines the switching interval of Out1

- *Out1 Timing*  
 Here you set the Poti1-8 (channel) of the used push button / 3-way switch.

**Bitmask - explanation**

With the 8 boxes of the Bitmask you will the switching sequence of Out1. How long a box will switch ON or OFF Out1 you will later set under the *WP-Event*.

**Example:**

Under *WP-Event* you set for example a value of 100 (100 x 10ms = 1 Second).

Each box under "Out1 Bitmask" is then working for this time (1 Second).

So if the boxes are activated as you can see in the picture (the first 5 ON and the last OFF) the switching output 1 will work like this:

1second "ON" - 1second "ON" - 1second "ON" - 1second "ON" - 1second "ON" - 1second "OFF" - 1second "OFF" - 1second "OFF"

Output 1 is also ON for 5 seconds and then OFF for 3 seconds.

**Please note:**

The program will processing the whole bitmask! If the *Waitingtime* for a Waypoint is longer, the bitmask will start again.

**TIP**

A DSLR camera can also trigger very fast. So you better use a short time for the WP-event (e.g. 6-10).

(See also [Switch Examples](#))

## 4 WayPoint Event

Each scaled [WayPoint](#) in the [MikroKopterTool](#)-OSD has a field "WP-Event" ([WayPoint](#)-Event). With each [WayPoint](#)-Flight you can trigger i.e. a camera automatically after reaching the appropriate [WayPoint](#).

If the Kopter reaches the [WayPoint](#) the Kopter stays there for the delay time set under the tab "Time". During the delay time the value will be transferred to the [FlightCtrl](#) entered under WP-Event.



Zeit	Radius	WP-Event	Steigrate	Höhe	Richtung
--	--	--	--	1	--
10	10	0	--	--	POI
10	10	50	--	--	POI
10	10	100	--	--	POI
10	10	200	--	--	POI
10	10	0	--	--	POI
10	10	0	--	--	POI
10	10	0	--	--	POI
10	10	0	--	--	POI

The functions and the settings of the [WayPoints](#) are described here: [en/MikroKopterTool-OSD/MikroKopterTool-OSD](#)

# 5 Switch Examples

Let's take a few WP-Event values which are assigned for [WayPoints](#) and let's have a look to the function of the switch output in some examples.

How would the output switch with this values?

Zeit	Radius	WP-Event	Steigrate	Höhe	Richtung
--	--	--	--	1	--
10	10	0	--	--	POI
10	10	50	--	--	POI
10	10	100	--	--	POI
10	10	200	--	--	POI
10	10	0	--	--	POI
10	10	0	--	--	POI
10	10	0	--	--	POI
10	10	0	--	--	POI

**For Information:**

The switching operation will be repeated as long until the set "Time" for the [WayPoint](#) is counted down.  
 Example: Is under "Time" a 10 entered the Kopter will stay for 10 sec. at that [WayPoint](#) and during this time the value of the WP-Event will be transferred.

**WP-Event = 0**

Is a "0" entered under WP-Event the function is OFF. The output will be not switched and a camera will be not triggered.

**WP-Event = 50**

Is a "50" entered under WP-Event is the time per casket 0,5 seconds ( $50 \times 10\text{ms} = 500\text{ms} = 0,5\text{sek}$ ).

**WP-Event = 100**

Is a "100" entered under WP-Event is the time per casket 1 second ( $100 \times 10\text{ms} = 1000\text{ms} = 1\text{sek}$ ).



**WP-Event = 200**




Is a "200" entered under WP-Event is the time per casket 2 seconds ( $200 \times 10\text{ms} = 2000\text{ms} = 2\text{sek}$ ).




Here are some examples how you could switch the caskets (other patterns are possible):

Out1 Bitmask:		Click to change sequence:						<b>Beispiel 1</b> (example 1)	
Bitmask =	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
WP-Event = 50	0,5sec on	0,5sec off	0,5sec off	0,5sec off	0,5sec off	0,5sec off	0,5sec off	0,5sec off	0,5sec off





WP-Event = 100	1sec on	1sec off	1sec off	1sec off	1sec off	1sec off	1sec off	1sec off
WP-Event = 200	2sec on	2sec off	2sec off	2sec off	2sec off	2sec off	2sec off	2sec off
Out1 is:	ON ->	OFF ->						
		.....						

Out1 Bitmask:		Click to change sequence: 						<b>Beispiel 2</b> (example 2)	
Bitmask =	ON	OFF	ON	OFF	ON	OFF	ON	OFF	
WP-Event = 50	0,5sec on	0,5sec off	0,5sec on	0,5sec off	0,5sec on	0,5sec off	0,5sec on	0,5sec off	
WP-Event = 100	1sec on	1sec off	1sec on	1sec off	1sec on	1sec off	1sec on	1sec off	
WP-Event = 200	2sec on	2sec off	2sec on	2sec off	2sec on	2sec off	2sec on	2sec off	
Out1 is:	ON ->	OFF ->	ON ->	OFF ->	ON ->	OFF ->	ON ->	OFF	
		.....							

Out1 Bitmask:		Click to change sequence: 						<b>Beispiel 3</b> (example 3)	
Bitmask =	ON	OFF	OFF	ON	OFF	OFF	ON	OFF	
WP-Event = 50	0,5sec on	0,5sec off	0,5sec off	0,5sec on	0,5sec off	0,5sec off	0,5sec on	0,5sec off	
WP-Event = 100	1sec on	1sec off	1sec off	1sec on	1sec off	1sec off	1sec on	1sec off	
WP-Event = 200	2sec on	2sec off	2sec off	2sec on	2sec off	2sec off	2sec on	2sec off	
Out1 is:	ON ->	OFF ->	ON ->	OFF ->	ON ->	OFF			
		.....							


**Beispiel 4**  
(example 4)


Click to change sequence: 


Out1 Bitmask: 

Bitmask =	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF
WP-Event = 50	0,5sec on	0,5sec off	0,5sec off	0,5sec off	0,5sec on	0,5sec off	0,5sec off	0,5sec off
WP-Event = 100	1sec on	1sec off	1sec off	1sec off	1sec on	1sec off	1sec off	1sec off
WP-Event = 200	2sec on	2sec off	2sec off	2sec off	2sec on	2sec off	2sec off	2sec off


Out1 is: ON -> OFF -> ON -> OFF ->









**Beispiel 5**  
(example 5)


Click to change sequence: 


Out1 Bitmask: 

Bitmask =	ON	ON	OFF	OFF	ON	ON	OFF	OFF
WP-Event = 50	0,5sec on	0,5sec on	0,5sec off	0,5sec off	0,5sec on	0,5sec on	0,5sec off	0,5sec off
WP-Event = 100	1sec on	1sec on	1sec off	1sec off	1sec on	1sec on	1sec off	1sec off
WP-Event = 200	2sec on	2sec on	2sec off	2sec off	2sec on	2sec on	2sec off	2sec off

Out1 is: ON -> OFF -> ON -> OFF ->









**Exception**





If you use for the WP-Event a value of 250, Out1 (or Out2) is during the delay (Time) at the WayPoint still on or off.




**Beispiel 6**  
(example 1)

Click to change sequence: 

Out1 Bitmask: 

Bitmask =	on	off	off	off	off	off	off	off
	on ->							

WP-Event=250 Out1 is:				
	The switching output is at the WayPoint still <b>ON</b> and during the rest of the time <b>OFF</b> .			

Out1 Bitmask:		Click to change sequence:		<b>Beispiel 7</b> (example 1)						
Bitmask =		off	on	off	off	off	off	off	off	
WP-Event=250 Out1 is:	off ->									
	The switching output is at the WayPoint still <b>OFF</b> and during the rest of the time <b>ON</b> .									

## 6 testing and simulation at home

Look [here](#) for further documentation and how to test that without flying