

## Switch 4 Manual

### 4 outputs switch component



### table of contents

<b>1 Summary</b> .....	<b>1</b>
<b>2 Scope of supply</b> .....	<b>1</b>
<b>3 Connecting</b> .....	<b>2</b>
3.1 Connecting to one Servo output .....	2
3.2 Attaching power to the switching outputs .....	2
3.3 Connecting to the Weatronic® MUX-Box.....	3
<b>4 Routine options</b> .....	<b>3</b>
4.1 Routine selection .....	3
4.2 Routines .....	3
4.3 MUX-Box Routines.....	6
<b>5 Abnormal temperature protection</b> .....	<b>7</b>
<b>6 Technical specifications</b> .....	<b>7</b>
<b>7 Conformity</b> .....	<b>7</b>
<b>8 Disposal instructions for countries within the EU</b> .....	<b>8</b>

## **1 Summary**

Using the power-switch offers the opportunity to switch 4 independent outputs.  
 The 4 outputs of the **Switch 4** are activated by a servo output.  
 It is also possible to amplify the outputs of the Weatronic **MUX box**.  
 The switch module has 15 preset routines (see Section 4).  
 These can be easily adjusted.

## **2 Scope of Supply**

Weatronic® **Switch 4**  
 Patch cable

## 3 Connecting to your Receiver

### 3.1 Connecting to one Servo output

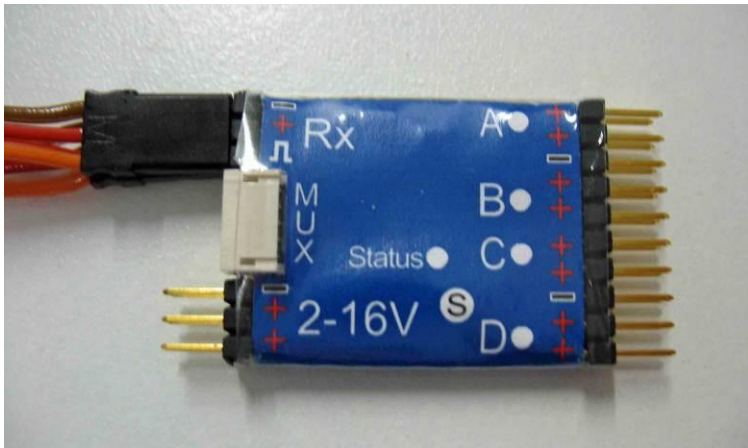
Please use the included patch cable (order WEA37637) to connect one of the designated RX connector with your preferred Servo Output on your Receiver. Thus the internal power supply of the **Switch4** is provided.

Now you can program the "switch control channel" at your radio.

At the second "RX" marked slot, the power output can be looped through, so an Y-cable is not required.

The power supply for the switching outputs ( A,B,C and D ) must be provided separately.

Details will be described in Section 3.2.



### 3.2 Attaching power to the switching outputs

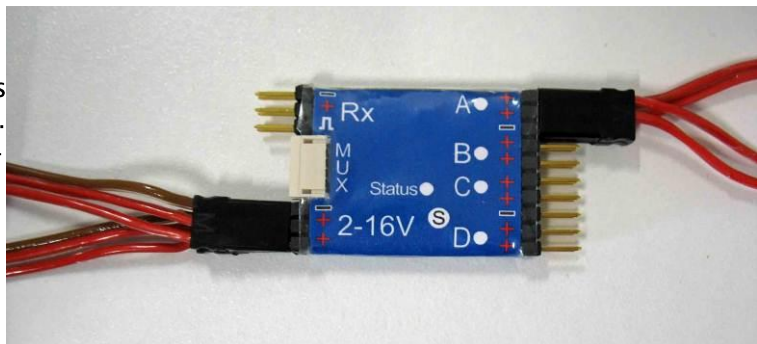
For the switching outputs, a separate power supply is needed. For simple switching tasks with low power consumption, maximum 2 amps, it is sufficient to supply the switch via a cable from the receiver. In this case, the impulse pin has to be removed (orange or yellow wire). The consumer can be plugged directly to the output

**We point out that the voltage source must be appropriate for the total load, Otherwise, in case of overload, the power supply of the receiver is compromised.**



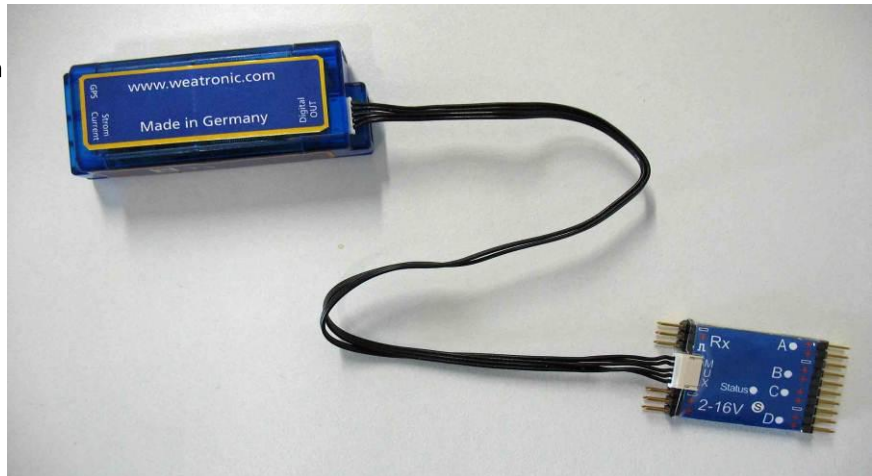
Whenever currents higher than **2** amps and up to **20** amps are required, *all* 4 pins need to get a separate power supply. Also the output (A,B,C and D ) needs all 4 pins.

**PLEASE NOTE: The ground ( minus pole ) has to be routed directly from the attached consumer to the power supply.**



### 3.3 Connecting to the Weatronic® MUX-Box

Connection between the **Switch 4** and the **MUX-Box** is maintained with the 5-pin ribbon cable ( order: WEA37975 ). Furthermore the **Switch 4** has to be set to routine no.14 or no.15.



## 4 Routine options

Choosing between different routines is easy. Just use the button and check the 5 LED's

### 4.1 Routine selection

The **Switch 4** offers 15 different routines.  
After switching on, the last saved routine is executed.  
The status LED flashes 1 time per second, to indicate the normal mode.

To access the *routine selection mode*, press the button for 5 seconds. After 5 seconds, while pushing the status LED is flickering, the status LED starts to blink slowly.  
Now you release the button, and the LED will be constant. So you entered the *routine selection mode*.  
From now on, each push of the button cycles one routine forward. The LED's at each output are simulating the different behaviors.

Some routines are influenced by the servo impulse parameters, e.g. the flashing frequency is changing.

As an example, routine-7 "running light": while the **Switch4** is at the *routine selection mode* (status LED is constant) , the frequency of the running light can be adjusted with the channel (e.g. a poti) .  
After leaving the selection mode the channel now switches (by changing the pulse) between on, off and running light( which uses the adjusted "running" frequency).

By re-pressing the button for 5 seconds the **Switch4** saves the current routine selection as well as the parameter settings and then exits the *routine selection mode*.

Now the status LED will flash again 1 time per second to indicate the "normal" mode.

## 4.2 Routines

### Routine 1: On / Off

Impulse	Output A	Output B	Output C	Output D
<=0% (<=1500 µs)	Off	Off	Off	Off
>0% (>1500 µs)	ON	ON	ON	ON

This Routine switches all 4 outputs on or off at the same time.

### Routine 2: Single ON

Impulse	Output A	Output B	Output C	Output D
< -60% (<=1200 µs)	OFF	OFF	OFF	OFF
-30% (<=1350 µs)	ON	OFF	OFF	OFF
0% (<=1500 µs)	OFF	ON	OFF	OFF
+30% (<=1650 µs)	OFF	OFF	ON	OFF
+60% (<=1800 µs)	OFF	OFF	OFF	ON
> +60% (> 1800µs)	ON	ON	ON	ON

This routine cycles "ON" trough each single output.

### Routine 3: Single OFF

Impulse	Output A	Output B	Output C	Output D
< -60% (<=1200 µs)	ON	ON	ON	ON
-30% (<=1350 µs)	OFF	ON	ON	ON
0% (<=1500 µs)	ON	OFF	ON	ON
+30% (<=1650 µs)	ON	ON	OFF	ON
+60% (<=1800 µs)	ON	ON	Ein	ON
> +60% (> 1800µs)	OFF	OFF	OFF	OFF

This routine cycles "OFF" trough each single output. The reverse to routine 2 so to say.

### Routine 4: Sum up

Impulse	Output A	Output B	Output C	Output D
<= -48 % (<=1260 µs)	OFF	OFF	OFF	OFF
> -48 % (>1260 µs)	ON	OFF	OFF	OFF
> -16 % (> 1420 µs)	ON	ON	OFF	OFF
> +16 % (> 1580 µs)	ON	ON	ON	OFF
> +48 % (> 1740 µs)	Ein	Ein	Ein	Ein

this routine is adding one output in a row.

### Routine 5: Blink

Impulse	Output A	Output B	Output C	Output D
$\leq -27\%$ ( $\leq 1367\ \mu\text{s}$ )	ON	ON	ON	ON
0% ( $\leq 1500\ \mu\text{s}$ )	OFF	OFF	OFF	OFF
$> +27\%$ ( $\leq 1633\ \mu\text{s}$ )	Blinking	Blinking	Blinking	Blinking

Here you can switch between ON, OFF and Blinking. Please adjust the blinking frequency at the *routine selection mode*.

### Routine 6: Blink + C & D

Impulse	Output A	Output B	Output C	Output D
$\leq -50\%$ ( $\leq 1250\ \mu\text{s}$ )	OFF	OFF	ON	ON
$\leq 0\%$ ( $\leq 1500\ \mu\text{s}$ )	Blinking	Blinking	ON	ON
$\leq +50\%$ ( $\leq 1750\ \mu\text{s}$ )	Blinking	Blinking	OFF	OFF
$> +50\%$ ( $> 1750\ \mu\text{s}$ )	Blinking	Blinking	OFF	OFF

Output A and B are blinking. Furthermore Output C and D can be activated. Please adjust the blinking frequency at the routine selection mode.

### Routine 7: Output ON in Sequence ( „ running light “ )

Impulse	Output A	Output B	Output C	Output D
$\leq -27\%$ ( $\leq 1367\ \mu\text{s}$ )	ON	ON	ON	ON
0% ( $\leq 1500\ \mu\text{s}$ )	OFF	OFF	OFF	OFF
$> +27\%$ ( $\leq 1633\ \mu\text{s}$ )	Sequence	Sequence	Sequence	Sequence

This routine let you switch all 4 outputs ON, OFF or sequence. Please adjust the frequency at the routine selection mode.

### Routine 8: Sum up – “running light”

Impulse	Output A	Output B	Output C	Output D
$\leq -27\%$ ( $\leq 1367\ \mu\text{s}$ )	ON	ON	ON	ON
0% ( $\leq 1500\ \mu\text{s}$ )	OFF	OFF	OFF	OFF
$> +27\%$ ( $\leq 1633\ \mu\text{s}$ )	Sequence	Sequence	Sequence	Sequence

Each output is set ON one after the other. A, A+B, A+B+C, A+B+C+D, none. Please adjust the frequency at the routine selection mode.

### Routine 9: Airplane lighting

Impulse	Output A	Output B	Output C	Output D
$\leq -50\%$ ( $\leq 1250\ \mu\text{s}$ )	OFF	OFF	OFF	OFF
$\leq 0\%$ ( $\leq 1500\ \mu\text{s}$ )	OFF	OFF	ON	ON
$\leq +50\%$ ( $\leq 1750\ \mu\text{s}$ )	Blinking	Flashing	ON	OFF
$> +50\%$ ( $> 1750\ \mu\text{s}$ )	Blinking	Flashing	ON	ON

Output A is blinking ( collision warning light, Beacon-light ), output B is flashing ( collision warning light, strobe-

light ). Output C is added as position lights and output D can be used as landing lights.

### Routine 10: Afterburner

Impulse	Output A	Output B	Output C	Output D
$\leq 0\%$ ( $\leq 1500 \mu s$ )	OFF	OFF	OFF	OFF
$> 0\%$ ( $> 1500 \mu s$ )	Afterburner	Afterburner	Afterburner	Afterburner

This is the Afterburner routine, which includes the typical flickering. The start up time can be adjusted in the routine selection mode.

### Routine 11: Truck – Signals and Lights

Impuls	Output A	Output B	Output C	Output D
$< -60\%$ ( $\leq 1200 \mu s$ )	Blinking	OFF	OFF	OFF
$-30\%$ ( $\leq 1350 \mu s$ )	OFF	OFF	OFF	OFF
$0\%$ ( $\leq 1500 \mu s$ )	OFF	Blinking	OFF	OFF
$+30\%$ ( $\leq 1650 \mu s$ )	Blinking	OFF	ON	ON
$+60\%$ ( $\leq 1800 \mu s$ )	OFF	OFF	ON	ON
$> +60\%$ ( $> 1800 \mu s$ )	OFF	Blinking	ON	ON

This surface (car or truck) typical routine let you use the left and right signal ( Output A and B ), also the brakes ( output C ) and the normal headlight ( output D ). Please note that the switch control channel has to be mixed to your gear control channel, gear breaks channel as well as to the headlights channel.

### Routine 12: Police lights

Impulse	Output A	Output B	Output C	Output D
$\leq -50\%$ ( $\leq 1250 \mu s$ )	OFF	OFF	ON	ON
$\leq 0\%$ ( $\leq 1500 \mu s$ )	Police lights	Police lights	ON	ON
$\leq +50\%$ ( $\leq 1750 \mu s$ )	Police lights	Police lights	OFF	OFF
$> +50\%$ ( $> 1750 \mu s$ )	OFF	OFF	OFF	OFF

Police Car lights style, means Output A and B are blinking alternate and the remaining outputs can be switched.

### Routine 13: pulse duration modulation (PDM)

Impulse	Output A	Output B	Output C	Output D
$\leq -80\%$ ( $\leq 1100 \mu s$ )	OFF	OFF	OFF	OFF
$-80\%$ ( $1101 \mu s$ ) ... $> +80\%$ ( $> 1900 \mu s$ )	PDM 0 ... 100 %	PDM 0 ... 100 %	PDM 0 ... 100 %	PDM 0 ... 100 %

This routine controls the pulse duration modulation. The impulse with is adjusted with the Switch Control Channel

## 4.3 MUX-Box Routines

### Routine 14: MUX-Box 1

Impulse	Output A	Output B	Output C	Output D
<=0% (<=1500 µs)	OFF	OFF	OFF	OFF
>0% (>1500 µs)	MUX-Box Out 1 ON	MUX-Box Out 2 ON	MUX-Box Out 3 ON	ON

Here you can amplify the MUX-Box outputs. Furthermore you can control all outputs by the switch control channel.

### Routine 15: MUX-Box 2

Impulse	Output A	Output B	Output C	Output D
<=0% (<=1500 µs)	MUX-Box Out 1 ON	MUX-Box Out 2 ON	MUX-Box Out 3 ON	OFF
>0% (>1500 µs)	MUX-Box Out 1 ON	MUX-Box Out 2 ON	MUX-Box Out 3 ON	ON

Again you can amplify the MUX-Box outputs. But now you only are able to control output D with the switch control channel.

## 5 Abnormal temperature protection

Each of the 4 outputs is protected against overheating, As soon as the output is reaching the temperature limit it will be switched off and the output LED will start to flash.

## 6 technical specifications

Voltage range: 2 – 16 Volt

Friction loss: 15 – 40 mA, depending on the switching state

current load per output: max. 10A (15A for short periods)

Total current: max. 20A

temperature range: -10 bis +60 degrees Celsius / 14 to 140 degree Fahrenheit

abnormal temperature maximum: approx. 90 degree Celsius / 194 degree Fahrenheit

Size: 35 (46 with pin) x 68 x 26 x 7mm / 1.38" ( 1.81" with pin) x 2.68" x 1.02" x 0.27"

weight: 20g / 0.7 oz

## 7 Conformity

EC Certificate of Conformity in accordance with EC directives

The Switch 4 was developed, designed and manufactured in compliance with the EC Directives for Electromagnetic Compatibility 2004/108 / EC

For this the applicable harmonized standard EN 61000-6-1

Further details can be read in the EC declaration of conformity of the company weatronic ® GmbH.



## **8 Disposal instructions for the countries within the EU**

In the EU the Weatronic ® switch4 must be disposed separately from normal household waste at the end of its service life range. Information for the proper disposal can be obtained at the local authorities.



**WEATRONIC®** Dual FHSS

