



## How-To

### Using the 3-Position Switch (G) for Flaps on a Futaba 7C 2.4 GHZ

**NOTE:** The Futaba 7C transmitter allows the assignment of switches to channels 5 and 7 only. If you have retractable landing gear and flaps, use one channel for the flaps and the other for the retractable landing gear. Use channel 6 for the receiver battery if both channels (5 and 7) are needed. Channel 6 is always assigned to the dial switch (the default for flaps). If both are installed, channel 5 is typically used for the retractable gear and channel 7 is used for flaps.

#### Before you program the transmitter:

Make sure that you plug the wire for the retractable gear into channel 5 on your receiver (if applicable) and the wire for the flaps into channel 7. Plug the battery wire into channel 6 or any other open channel.

#### To assign the 3-position switch "G":

1. Turn on your transmitter. Press and briefly hold down **Mode/Page** to access programming mode.
2. Use the programming **Dial** button to scroll down to the **PARAMETER** submenu, and then press the **Dial** button to access the submenu.
3. In the **PARAMETER** submenu, press the **Down/Right** edit button to navigate to the channel assignment menu **PARA**.

The default assignment will look as follows:

```
CH5 - SW>E  
CH7 - SW>B
```

**NOTE:** The following steps assume that you want to program CH7 to be assigned to switch G to operate the flaps in the full up, center, and full down position.

4. Make sure that **CH7** is selected for switch programming by pressing the **Down/Right** edit button to navigate to CH7 (the letter next to the CH7 option will blink).
5. Make sure that the actual switch **G** is in the full up position.
6. Use the **Dial** button to assign switch **G** to **CH7**. You should see the following menu setting on the transmitter display after changing the letter to "G."

```
CH5 - SW>E  
CH7 - SW>G
```

7. Press the **End** button to exit the **PARA**. submenu and get back to the **PARAMETER** submenu.

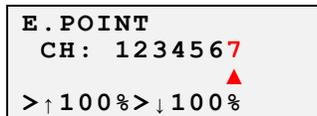
8. Press the **End** button again to exit programming mode.

**NOTE:** The following steps are only necessary if the default positions for the flaps are not properly aligned when operating the switch G. This normally requires some endpoint adjustment for CH7 (test the switch first to see if you are happy with the three flap positions as you operate the switch).

**To adjust the endpoints for the flaps:**

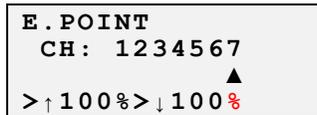
**NOTE:** Before adjusting the endpoints on your transmitter, make sure that you mechanically adjust the position of the flaps first. This will ensure that you can keep the electronic endpoint adjustments to a minimum and do not use the transmitter to compensate for a poor mechanical setup.

1. Press and briefly hold down **Mode/Page** to access programming mode.
2. Use the programming **Dial** button to scroll down to the **E.POINT** submenu, and then press the **Dial** button to access the submenu.
3. In the **E.POINT** submenu, press the **Down/Right** edit button to navigate to **CH7**.

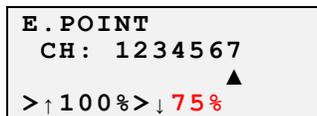


**NOTE:** Make sure that the actual G switch is in the **full up** position (top position) before continuing.

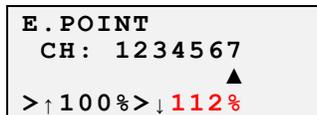
4. You will notice that the % symbol next to the right 100% value is blinking (as indicated by the red text in the below image). If you turn on your plane (receiver) you can watch your flaps on the airplane move as you adjust the setting. Use the **Dial** button to change the value below 100% if you want to adjust the full-up position of the flaps downward (increase the flap deflection). Or increase the value to over 100% if you need to adjust the full-up position of the flaps upward to achieve the correct setting.



For example, let's say that the flaps are too far up in the retracted position (up position) and you need to move them further down so that the trailing edge of the flaps aligns with the trailing edge of the wing. A possible setting could look something like the following example:



An example that requires up-alignment of the flaps in the retracted position looks as follows:



5. Once you are satisfied with the full-up position of your flaps, change the position of the actual switch G to **full down** (bottom position)—you do not need to exit the **E.POINT** menu before changing the switch G position.
6. You will notice that the % symbol next to the left 100% value is now blinking. Use the **Dial** button to change the value below 100% if you want to adjust the full-down position of the flaps downward. Increase

the value to over 100% if you need to adjust the full-down position of the flaps upward to achieve the correct setting.

```
E . POINT
CH: 1234567
      ▲
>↑100%>↓100%
```

**NOTE:** Please note that for the full-down position of switch G (fully deployed flaps), adjusting the %-value works exactly the opposite compared to the adjustments in the retracted position. That is, values less than 100% will adjust the flaps upward (decrease the flap deployment) and values above 100% will adjust the flaps downward (increase the flap deployment).

For example, let's say that the flaps are too far up in the fully deployed position and you need to move them further down to increase the flap deflection. A possible setting could look something like the following example:

```
E . POINT
CH: 1234567
      ▲
>↑80%>↓75%
```

An example that requires you to decrease the full-down flap deployment could look as follows:

```
E . POINT
CH: 1234567
      ▲
>↑108%>↓75%
```

**NOTE:** You cannot adjust the endpoints for your flaps for the center position of switch G since the center position is defaulted to 50% of the settings you used for positions 1 and 3. That is, the center position will be the mid-point between the endpoints of position 1 and 3.

7. Once you are satisfied with the endpoint settings, press the **End** button to exit programming mode.

#### To mix in down-elevator when deploying the flaps:

**NOTE:** As you deploy the flaps on your plane, the pitching moment increases and raises the nose of your airplane. In order to compensate for this effect, you may need to mix in down-elevator to keep the nose steady. The level of needed down-elevator varies with the specific configuration of your plane (e.g., size of flaps, flap deflection, plane type and size, etc.). Before mixing in down-elevator, you might want to test fly the airplane first to verify the response of your airplane to the different flap settings. If you have to manually compensate for the increased pitching moment and actively use down elevator as you fly the airplane with the flaps deployed, you can program automatic down-elevator so you don't have to manually compensate for the pitching effect every time you deploy the flaps. When test flying your airplane, land the airplane with the flaps retracted if the pitching moment is very large and you have to aggressively use down-elevator. This will minimize the risk of crashing your plane before you have successfully programmed your down-elevator settings. Repeat the test flights and adjust your settings until you are satisfied with your airplane's response to the flap deployment.

1. Press and briefly hold down **Mode/Page** to access programming mode.
2. Press **Mode/Page** again to navigate to the mixing menu (P-MIX1, P-MIX2, or P-MIX3). Select one of the three mixing options. If you don't have any other mix function enabled/assigned, simply choose **P-MIX1**.

**NOTE:** The following steps assume that you have selected P-MIX1. However, you can use any of the other two mixing options if preferred and follow the same steps.

3. Press the **Dial** button to access the P-MIX1 submenu. You will see the following default setting.

```
P-MIX1 CH1>4
RT>± 0%
>± 0%
OFS>SET
```

**NOTE:** Make sure that the actual G switch is in the **full up** position (top position) before continuing.

4. In the **P-MIX1** submenu, press the **Down/Right** edit button repeatedly to navigate through the available options until you see the “INH” setting blink.

```
P-MIX1 >INH
MAS>CH1
SLV>CH4
SW>A
```

5. Turn the **Dial** button counter-clockwise to change the setting to “OFF.” You should see the following settings.

```
P-MIX1 >OFF
MAS>CH1
SLV>CH4
SW>A
```

6. Press the **Down/Right** edit button multiple times until the switch assignment setting blinks as indicated by the red-colored switch letter “A” in the below image.

```
P-MIX1 >OFF
MAS>CH1
SLV>CH4
SW>A
```

7. Turn the **Dial** button clockwise to change the switch assignment to “G.”

**NOTE:** Please note that there are five (5) different settings for switch G depending on how you want to use the switch. Since you want to use the switch for the three flap positions, make sure that you set it to the second G setting as indicated in the below image (you should see the symbol (↕) that looks like a down-arrow with a horizontal bar).

```
P-MIX1 >OFF
MAS>CH1
SLV>CH4
SW>G↕
```

8. Test your switch setting by cycling through the three positions for the G switch (up, center, down). If set correctly, the ON/OFF setting should change from “OFF” for the up position to “ON” for the mid and down positions. “ON” simply means that the transmitter enables elevator mix-in for the mid and down positions while it is disabled (“OFF”) for the up position of the flaps.

Example: G switch in “up” position:

```
P-MIX1 >OFF
MAS>CH1
SLV>CH4
SW>G↓
```

Example: G switch in “center” and “down” positions:

```
P-MIX1 >ON
MAS>CH1
SLV>CH4
SW>G↓
```

The next step is to assign the master “MAS” and slave “SLV” channels so that the transmitter automatically adjusts the elevator when operating the flaps. In this scenario, the master channel is channel 7 (flaps) and the slave channel is channel 2 (elevator). In a nutshell, the slave channel automatically responds to input to the master channel.

9. Press the **Down/Right** edit button multiple times until you navigate to the master channel option as indicated by the red-colored channel setting in the below image.

```
P-MIX1 >OFF
MAS>CH1
SLV>CH4
SW>G↓
```

10. Turn the **Dial** button clockwise to change the setting to **CH7**.

```
P-MIX1 >OFF
MAS>CH7
SLV>CH4
SW>G↓
```

11. Now repeat the previous two steps to assign **CH2** to the **SLV**.

```
P-MIX1 >OFF
MAS>CH7
SLV>CH2
SW>G↓
```

The last thing that is left is to set the actual down-elevator values for the center and down positions of switch G (the two positions for the flap deflection). You can set different values for the two switch positions (center and down).

12. Press the **Down/Right** edit button multiple times until you navigate to the following menu option. Make sure that you set the actual switch position for the G switch to the **down** position. The upper of the two %-values should blink as shown by the red-colored value in the below image.

```
P-MIX1 Ch7>2
RT>± 0%
>± 0%
OFS>SET
```

13. Turn the **Dial** button clockwise to change the percentage value to a **positive** number (e.g., 5% as a starting point).

```
P-MIX1 Ch7>2
RT>±    5%
>±      0%
OFS>SET
```

**NOTE:** Please note that **positive** values represent **down**-elevator and **negative** values represent **up**-elevator. Since the deployment of the flaps requires down-elevator, the values should be positive to compensate for the pitching effect.

14. Now change the G switch position to the center position to set the value for the center flap position. Press the **Down/Right** edit button to navigate to the second %-value as indicated by the following image.

```
P-MIX1 Ch7>2
RT>±    5%
>±      0%
OFS>SET
```

15. Turn the **Dial** button clockwise to change the percentage value to a positive number (e.g., 5%).

```
P-MIX1 Ch7>2
RT>±    5%
>±      5%
OFS>SET
```

16. Turn on the receiver on your airplane to test your settings by operating the G switch (you do not need to exit programming mode for the test). Pay close attention to the interaction between the flap position and the elevator response. The elevator should visibly adjust downward when deploying the flaps (the response should be very small, but visible).
8. Once you are satisfied with the elevator mix settings, press the **End** button two times to exit programming mode.

**NOTE:** Please note that the suggested values (5%) are just starting points. Test fly your airplane to verify your airplane's response to the different settings. Adjust the settings as necessary (up or down) and repeat test flying your airplane until you achieve the desired flight characteristics. Never land your airplane with the flaps deployed if it is difficult to fly because you will have to manually compensate for the pitching effect. If your plane lowers the nose when deploying the flaps, decrease the down-elevator mix. If the nose goes up, then increase the down-elevator mix.