



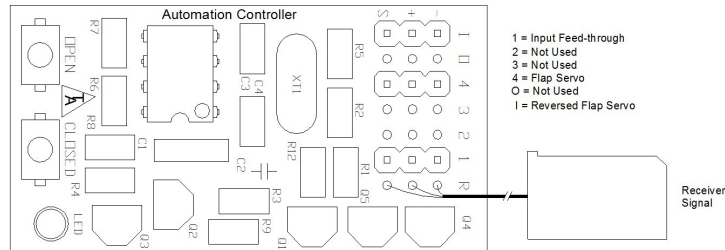
**Thomson
Automation**

Flaps Controller

Forward Output Channel
Reverse Output Channel
Adjustable Speed

Input: Futaba, Output: Pin Headers

Rev 2.0, 2.1 1040 Flaps Controller



User's Guide

Introduction

The Thomson Automation flaps controller is a light weight automation controller suitable for use in radio-controlled airplanes and other model vehicles using standard radio-control servos. It provides two speed controlled servo outputs. One output is reversed. The input is a standard servo control signal and the outputs follow the input at an adjustable speed. Speed settings are stored in permanent memory. Channel 1 is connected directly to the receiver input for use as a Y harness. Channels 4 and I are typically used for port and starboard flaps in airplanes with two separate mirror-mounted servos. The module has a 3-second start-up delay for compatibility with 2.4 GHz receivers. The flaps controller is intended for hobby use only.

Connecting the module

4-Cell or 5-Cell systems

If everything is connected to one 4-cell or 5-cell power source simply plug the servos directly into the module and the receiver plug into the receiver as in the connection diagram. A "y" harness can be used to connect 2 or more servos to one output channel. To provide servo power from a secondary battery, disconnect the + or middle wire in the receiver cable by cutting it or removing it from the connector shell and connect the secondary battery to channel 2.

Higher voltage systems

For systems with higher voltages, a reduced voltage must be supplied to the module. A voltage regulator is available for use with higher voltage systems. This provides a reduced voltage to the module.

Pushbuttons

These are labeled "Open" and "Closed" and are used to set the speed of the connected servos. To enter the speed adjustment mode, press and hold the OPEN pushbutton during normal operation.

Setting servo speeds

To change the speed of the servos:

1. While the module is operating, push and hold the OPEN pushbutton for 1 second.
2. The LED will flash quickly three times.
3. Release the OPEN pushbutton.
4. Push the OPEN pushbutton for a short time to increase the speed setting by 1 or,
5. Push the CLOSED pushbutton for a short time to decrease the speed setting by 1 or,
6. Push and hold the OPEN pushbutton to increase the speed setting by 5; if the OPEN pushbutton is held, the setting increases by 5 each time the LED flashes or,
7. Push and hold the CLOSED pushbutton to decrease the speed setting by 5; if the CLOSED pushbutton is held, the setting decreases by 5 each time the LED flashes.
8. Turn the power off and back on again to operate normally.

After the pushbuttons are released, the LED will flash to indicate the new setting value. If the value is below 31, the LED will flash once per setting count. If the value is above 30, the LED will flash twice for every 5 settings counts. The new settings are immediately stored in permanent memory. The LED will flash three times quickly after the count to indicate that the settings have been stored.

Operation

After turning on the power, the module will wait 3 seconds before sending control signals to the servos. This is to allow your transmitter and receiver to start up. To enter the programming mode, push and hold the OPEN pushbutton for 3 seconds. The LED will flash 3 times quickly to indicate the mode change. To return to the operating mode, turn the power off for 3 seconds and then back on.

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Quick Preset Settings

To set the speed to 200, press the “Open” button while turning the module on. To set the speed to 20, press the “Closed” button while turning the module on. The LED will flash 3 times quickly to indicate permanent storage of the new setting. Releasing the pushbutton will start normal operation.

The CLOSED pushbutton should not be pressed while the module is in normal use. Doing this can cause the module to stop working. To recover from this, turn the power off and then back on. Speed adjustments can cause movement of the forward servo. Disconnect the forward servo during speed adjustments.

Indicator LED

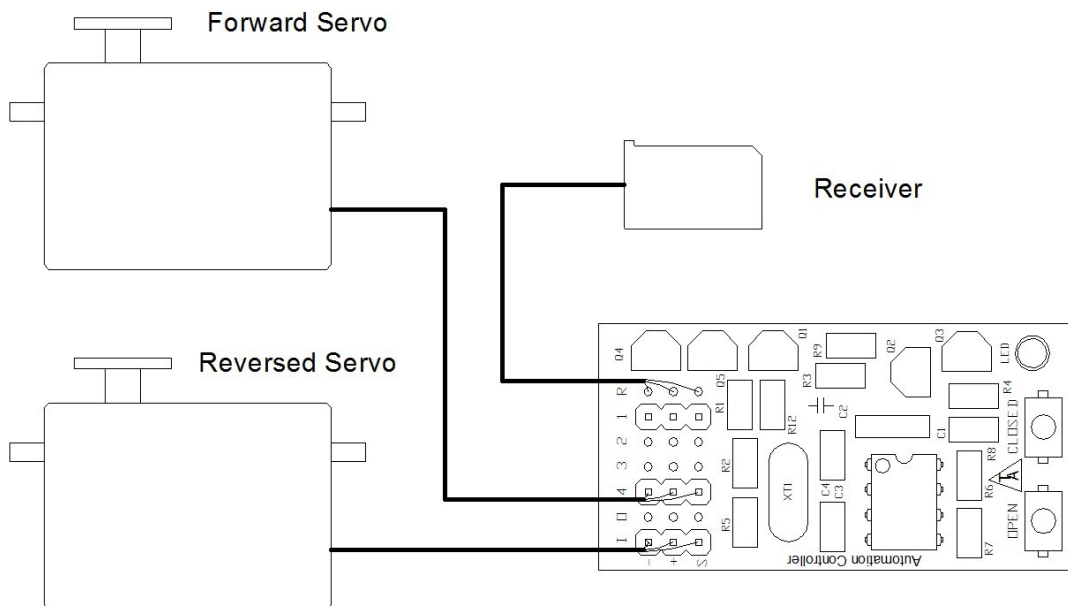
In settings modes the LED flashes to indicate the speed setting values. Since it is connected to the forward servo output, it shines at reduced brightness during normal operations.

Specifications

| | |
|---------------------------|--------------------------------------|
| Name | Flaps Controller |
| Part nr. | 1040 |
| Hardware rev | 2.1 |
| Firmware rev | 1.10 |
| Supply Voltage | 3.5V – 6,5V |
| Supply current | 3 ma |
| Servo Channels | 1 in, 3 out (1 Is An Input Follower) |
| Receiver Control Signal | 1.25V – 5V pulse |
| Weight without connectors | 9 gm |
| Board Size | 25 cm X 48 cm |
| Cable Length | 29 cm |
| Slowest Traverse Time: | 12 Sec |
| Fastest Traverse Time: | Per receiver input |

Changes From The Previous Version:

1. The operation of the pushbuttons has been changed to make programming easier.
2. A 3-second turn-on delay has been added to aid compatibility with 2.4 GHz systems.
3. Signal resolution had been increased to 1000 counts per millisecond.



Connection Diagram

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