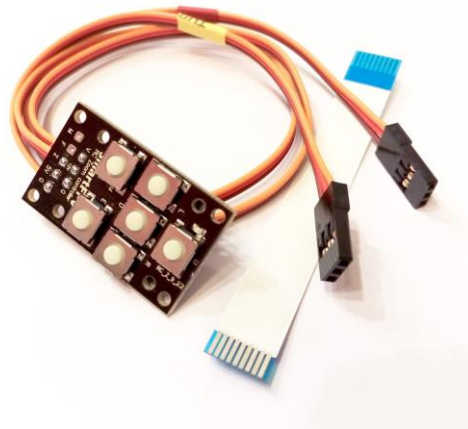


SmartFPV

RC Zoom Controller V2

User Guide



3/15/2015
Rev A

INTRODUCTION

This is RC Zoom Controller used to control zoom camera modules that have regular 9pin interface connector.

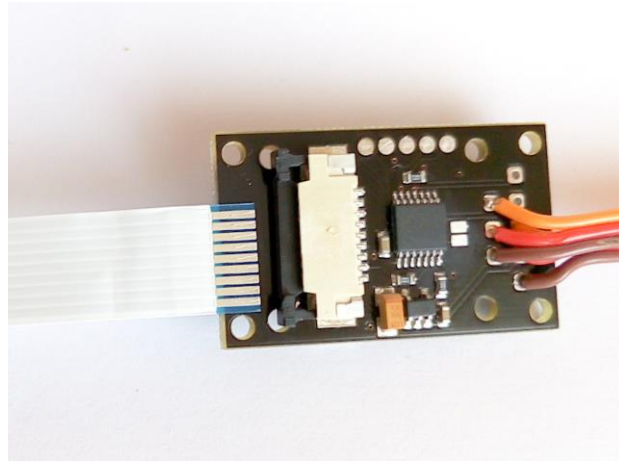
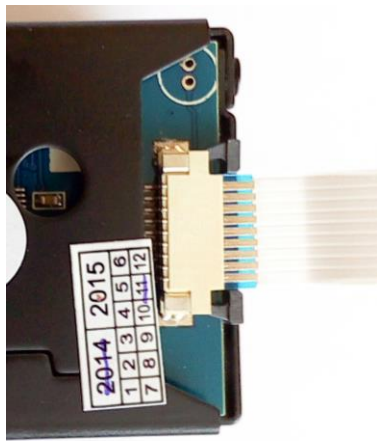
Connect zoom camera module to RC controller, plug RC control cable to your RC receiver and Video cable to video transmitter (connecting camera power properly) and camera is ready to use.

RC Zoom Controller has holes for M2 screws that let you screw controller on many cameras with standard screw holes: 15x20mm and 16x29mm

CONNECTING

RC Zoom Controller is connected to zoom camera module using flat 9 contact FPC cable that is supplied with Controller.

Connect 9 contact FPC cable with contacts facing top of 9 pin connector like seen in pictures. Please remember that FPC cable with opposite contacts on both ends should be used.



BEFORE CONNECTING PLEASE MAKE SURE THAT ZOOM CAMERA MODULE HAS THIS STANDARD 9 PIN INTERFACE PINOUT!

| No | 9 PIN CONNECTOR |
|----|-----------------|
| 1 | RXD |
| 2 | TXD |
| 3 | GND |
| 4 | +12VDC_IN |
| 5 | GND |
| 6 | VIDEO-OUT |
| 7 | GND |
| 8 | - |
| 9 | GND |



Pin #1

Pin #9

RC Zoom Controller has two servo style cables:

Yellow marked for video out and 12V camera power

Red marked for RC control



Servo style cables have standard pin meaning

| Wire | Yellow marked cable | Red marked cable |
|---------------|---------------------|------------------|
| Brown | Ground | Ground |
| Red | 12V | 5V |
| Yellow | Video signal | RC signal |

CONTROL

It is possible to control camera using regular RC channel outputs (PWM) or using CPPM signal available on many RC control systems.

Advantages of CPPM signal is that all RC channels are transmitted through one signal cable and you don't need additional cable for every channel you need for control.

Regular PWM signal control

When using regular RC channels to control camera, red marked cable is used for zoom control.

You also can control focus and menu. To do that you should solder additional wires to "F" and "M" pads on zoom controller for Focus and Menu functions accordingly. You should connect these wires to Focus and Menu control channels on RC receiver.

Control channel functions are show in this table

| Value | Zoom CH | | Focus CH | Menu CH |
|-------------|---------------|------------------|--------------------|---------|
| | Zoom CH (Pot) | Zoom CH (Switch) | | |
| 0% | Zoom Wide | Zoom Out (Down) | Focus Far (Left) | Menu |
| 50% | Zoom Middle | Stop Zoom | Stop Focus | Idle |
| 100% | Zoom Tele | Zoom In (Up) | Focus Near (Right) | |

CPPM signal control

If using CPPM signal to control camera there are 3 channels used. Channel functions are always in this order and following each other: **Zoom control, Focus control, Menu control.**

By default CPPM channels 8,9,10 are used to control camera: CH8 – Zoom, CH9 – Focus, CH10-Menu.

To change CPPM channels used you need to toggle 8 times RC transmitter Zoom switch within 10s after powering camera zoom controller by connecting it to RC receiver. After toggling 8 times transmitter switch blue LED on camera control board flashes one time

indicating saving of new configured channel. **Focus and Menu control channels will always be following 2 channels after Zoom control channel.**

Transmitter Switch operation

Camera zoom can be controlled in 2 ways – potentiometer or using 3 position switch on RC transmitter. How to change Zoom control modes is described in Configuration chapter.

Zoom Pot mode

By default Zoom control is controlled by following Zoom channel value. This means that zoom level is equal to channel value. If channel value is 0% then camera zooms minimal value (1X). If channel value is 100% camera zooms to maximum value (10X). If changing value from 0% to 100% zoom value will change proportionally.

This is used for Zoom control with transmitter potentiometer. This way you can rotate potentiometer which position you want and camera will zoom to that value.

Zoom Switch mode

Second way you can zoom camera is using 3 position switch. Side positions zoom in and out and middle position stops zoom. Hold switch in middle position and when needed switch either to Zoom IN or Zoom OUT position – wait while zoomed enough and switch to middle position to stop zooming.

Focus control is used same way as Zoom control with 3 position switch.

To enter camera Menu you need to toggle Menu control channel from 50% to 0% value and back. You can use Zoom and Focus control channels to navigate and change values in menu: Zoom switch to move up/down, Focus switch to change values +/-.

Toggle Menu command one more time to exit Menu.

Buttons

You can also use buttons on RC Zoom controller to Zoom IN/OUT, control Focus and enter camera menu.

U – Zoom IN / Up

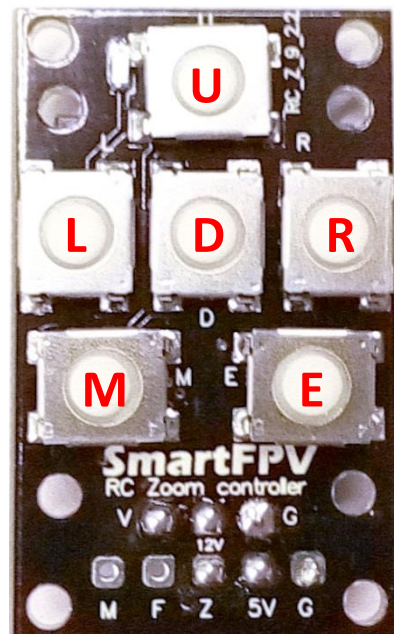
D – Zoom OUT / Down

L – Focus Far / Left

R – Focus Near / Right

M - Menu

E – Enter



CONFIGURATION

There is possibility to change some options of Zoom controller. It is done by simultaneously pressing 2 buttons and then powering ON Zoom controller (connecting red marked cable to RC receiver). Options will be cycled with each time you do this.

After power ON LED flashes one time or two times showing configured value.

Button combination for configuration

| Buttons to hold | Changed option | 1 LED flash | 2 LED flashes |
|-----------------|------------------|-------------|---------------|
| Menu + Up | Zoom mode | Switch mode | Pot mode |
| Menu + Down | Control protocol | PELCO-D | Sony |

When using PELCO-D protocol menu function is not available!