



Camera Switcher User Manual



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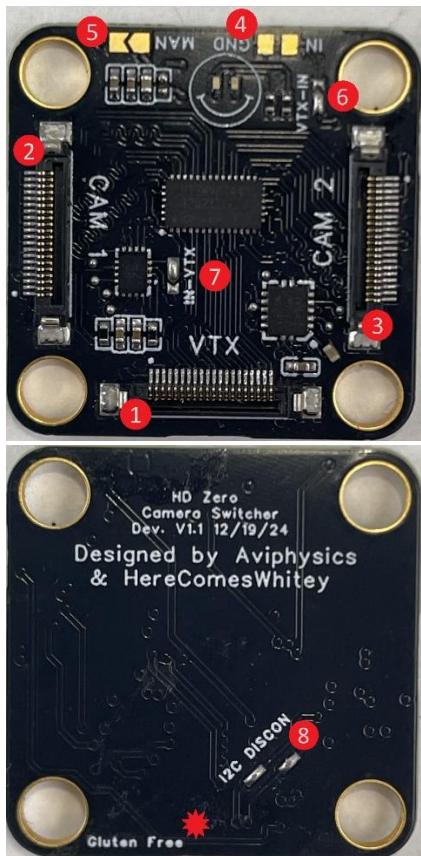
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Introduction

The HDZero Camera Switcher is a compact unit that allows you to connect 2 or more cameras to a single video transmitter and select between them with your controller. It was designed to work seamlessly with the system. There is no soldering and no special firmware or programming required. Just set up the mode on a switch and get ripping!

Diagram



1	VTX MIPI Connector
2	Camera 1 MIPI Connector
3	Camera 2 MIPI Connector
4	Pads for VTX/Manual Control
5	MAN Jumpers
6	VTX-IN 1 Jumpers
7	VTX-IN 2 Jumpers
8	i ² c Disconnect Jumpers
*	While true, don't eat your HD-Zero Camera Switcher please!

Features

- No soldering required
- Minimal configurator setup
- Compatible with BetaFlight and iNav
- Can be used without a flight controller
- Works with all HD-Zero MIPI Cameras
- Fast Switching
- Ability to change camera settings independently
- Can be daisy chained for more than 2 cameras

Specifications

- Power Input: 1.4-3.3v (For manual control)
- Dimensions: 26x26x2.6mm
- Mount Pattern: 20x20mm \varnothing 4mm
- Weight: 2.7g
- 3x MIPI Connectors
- GPIO Compliant Input

Setup

The HD-Zero Camera Switcher was designed with a 20x20mm mount pattern in order to fit a wide range of applications. Just pop in the included gummies and add it to your existing stack. The camera switcher is configurable to 3 modes: Standard, VTX Control, and Manual Control. In Standard mode the VTX is monitoring the MSP connection for the state of the Camera Control 1 Mode. To set this up all you need to do is go into BetaFlight or iNav and activate Camera Control 1 on the AUX that corresponds with the switch you'd like to use on your transmitter.



1. Standard (Delivered in this configuration)

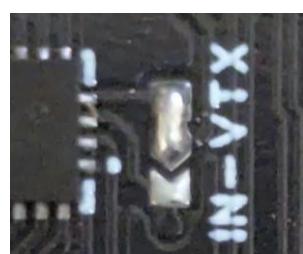
In this configuration the VTX will use its MSP connection with BetaFlight or iNav to select the active camera based on the state of the 'Camera Control 1' mode. When CC1 is disabled, Camera 1 will be selected. When enabled, Camera 2 will be selected. No soldering is required for this mode, only the 3 MIPI cables need to be plugged in. In this mode the VTX will be able to change camera settings independently. Green LED will indicate when camera 1 is selected. Red LED will indicate when camera 2 is selected.

Board configuration for this mode:

- VTX connected to UART on Betaflight or INAV Flight Controller configured for MSP-VTX
- The MAN jumper must be clear



- Both sets of VTX-IN jumpers must have center pad connected to VTX side.
Jumper 1 (Top Right of Board) Jumper2 (Middle Left of Board)



- The i2c Disconnect jumpers on the back must be closed.



2. VTX Control

In this configuration, the VTX monitors the state of the IN pad rather than utilizing the MSP connection. This is ideal for builds that don't use a flight controller or use an incompatible flight controller, while still allowing the VTX to regulate camera selection. This mode requires a common ground and a control wire to be soldered. Green LED will indicate when camera 1 is selected. Red LED will indicate when camera 2 is selected.

Board configuration for this mode:

- The MAN jumper must be closed.



- Both sets of VTX-IN jumpers must have center pad connected to VTX side.

Jumper 1 (Top Right of Board)



Jumper2 (Middle Left of Board)



- The i2c Disconnect jumpers on the back must be closed.



- GND is connected to the control device ground and IN is connected to 0-3.3 signal from the control device.



3. Full Manual Control

Use this mode on the secondary board when daisy chaining boards to use more than 2 cameras. In this mode the VTX will not have control of switching nor will it be monitoring the state of the switch. This mode requires a common ground and a control wire to be soldered. The state of the IN pad will directly control which camera is active. No voltage applied to the IN pad will select camera 1, while applying 1.4-3.3v will select camera 2. Both cameras on the Full Manual Control switch will always be connected to the i2c network, this means independent camera settings will not be possible. In this mode, when camera 1 is selected the green LED will not be illuminated. The red LED will light up when camera 2 is selected.

Board configuration for this mode:

- The MAN Jumper must be closed.



- Both sets of VTX-IN jumpers must have center pad connected to IN side.

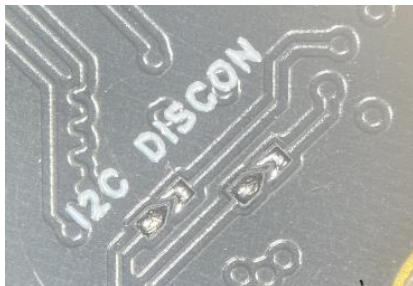
Jumper 1 (Top Right of Board)



Jumper2 (Middle Left of Board)



- The i2c Disconnect jumpers on the back must be Open.



- GND is connected to the control device ground and IN is connected to 0-3.3 signal from the control device.



Jumper Pad Details

The HD-Zero camera switcher utilizes 4 sets of jumper pads to help configure the board for any use case.

1. MAN- Located on the top side of the device. Connecting these 2 pads will tell the VTX the device is in either the VTX or Manual control mode.
2. VTX-IN 1: Located on the top side of the device, next to the smiley face. This changes where the power for the red LED is derived. When 'VTX' is selected the power comes from the VTX. When 'IN' is selected the power will come from the IN pad. Solder the IN and Center pads together when using the Full Manual Control Mode. This board uses low current LEDs in conjunction with a current limiting resistor. The LED should draw <4ma and be compatible with the GPIO of most microcontrollers.
3. VTX-IN 2: Located on the top toward the middle of the device. These pads change which source is controlling the switching of the cameras. The IN and Center pads must be soldered together on the secondary board when daisy chaining switchers to use more than 2 cameras.
4. i2c Discon: Located on the back of the device. These pads will disconnect the control IC from the i2c circuit. These pads must be disconnected on the secondary board when daisy chaining switchers to use more than 2 cameras.