

# **FAT SHARK**

## **RC VISION SYSTEMS**

### **TRANSFORMER USER MANUAL**

**FSV1101 Transformer 720p display**

**FSV1102 Transformer Binocular Viewer**

**FSV1103 Transformer Full Panel Viewer**

**Revision B 10/27/2016**

For more product information, please visit:

[www.fatshark.com](http://www.fatshark.com)

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### Age Recommendation:

Not for children under 14 years old.

\*Using any near eye displays on children under 14 can cause eye development problems. This is not a toy.

### Safety Instruction:

1. Please avoid wet or humid environments.
2. Please turn on/off the power as shown in the instruction below. Incorrect operation will be dangerous and could cause injury.

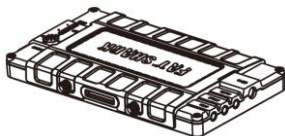
### Warning:

**Read the entire instruction manual to become familiar with the features of the product before operating. Failure to operate the product correctly can result in damage of the product, personal property and cause serious injury.**

# Product Contents

## FSV1101 Transformer 720p display

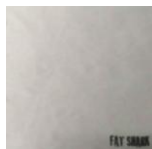
Monitor x 1pc



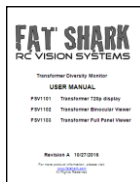
Li-ion battery holder x 1pc



Lens cleaning cloth x 1pc



Manual x 1pc

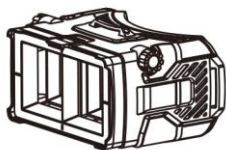


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## Product Contents

### FSV1102 Transformer Binocular Viewer

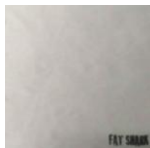
**Binocular Viewer x 1pc**



**Battery extension cable x 1pc**



**Lens cleaning cloth x 1pc**



## Product Contents

### FSV1103 Transformer Full Panel Viewer

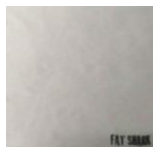
Full Panel Viewer x 1pc



Battery extension cable x 1pc



Lens cleaning cloth x 1pc



Cap x 1pc

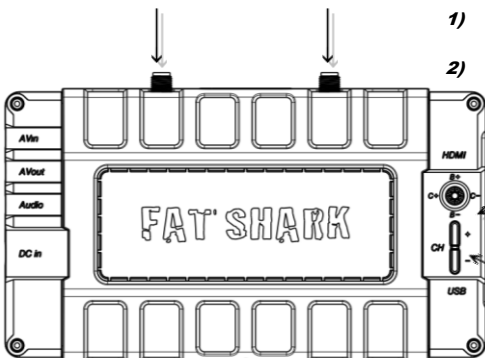
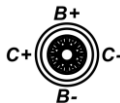


# Controls Diagram

## FSV1101 Transformer 720p display

*For circular polarized  
(omni directional)  
Antenna(recommended)*

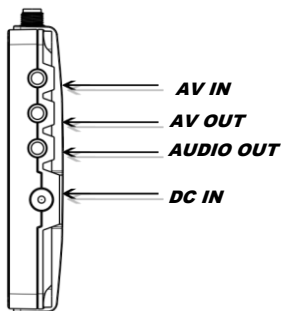
*For patch antenna  
(recommended)*



- 1) **Short Press to change display mode**
- 2) **Long press down rotates the image 180 degree**

**5 way joystick**

**Channel Selection**

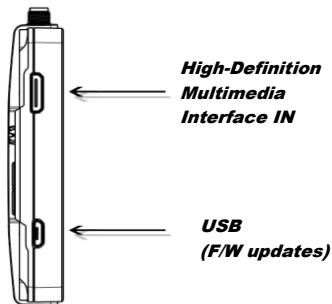


**AV IN**

**AV OUT**

**AUDIO OUT**

**DC IN**

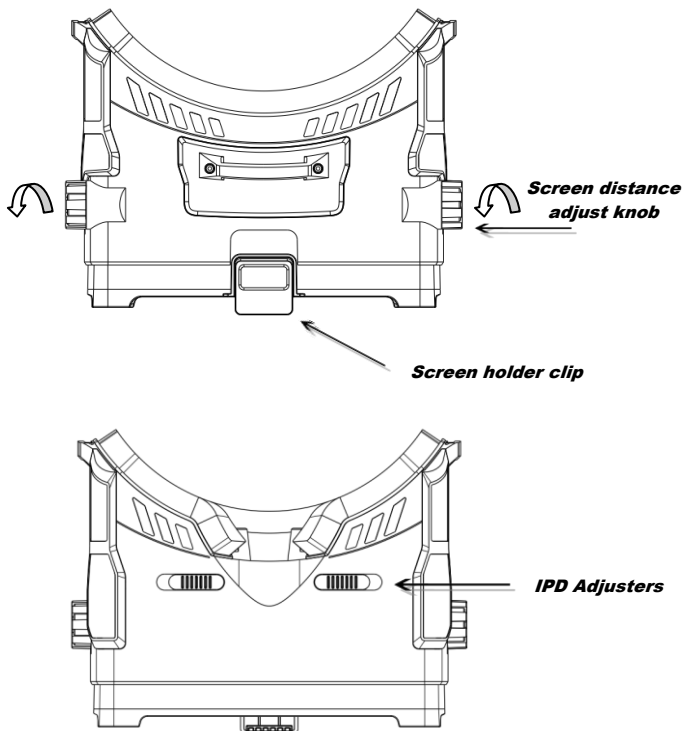


**High-Definition  
Multimedia  
Interface IN**

**USB  
(F/W updates)**

## Controls Diagram

### FSV1102 Transformer Binocular Viewer

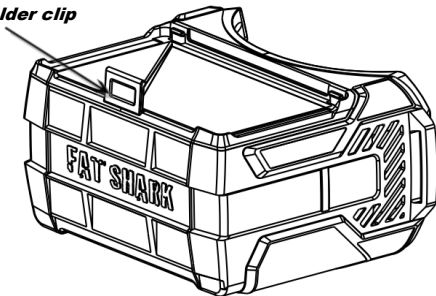


**SUN WARNING! DUE TO 3.6X OPTICS, LCD DAMAGE IS POSSIBLE IF LENS EXPOSED TO BRIGHT LIGHT. THIS WILL NOT BE COVERED BY WARRANTY.**

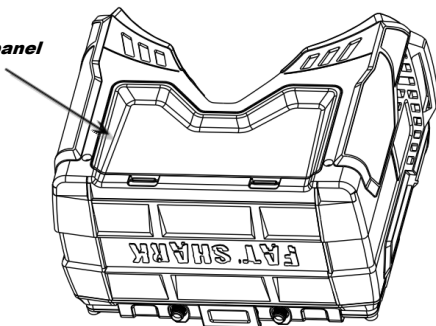
# Controls Diagram

## FSV1103 Transformer Full Panel Viewer

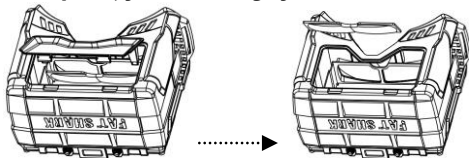
*Screen holder clip*



*Bottom panel*



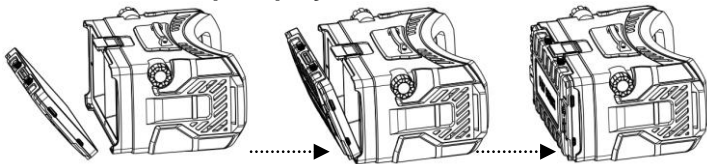
*Open the bottom panel, you can change your lens.*





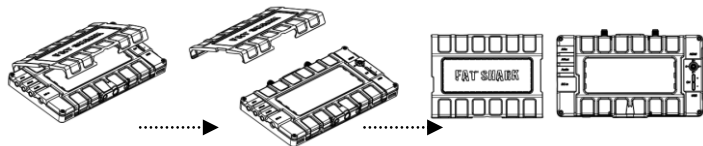
# Assembly instructions

## Transformer 720p display + Binocular Viewer

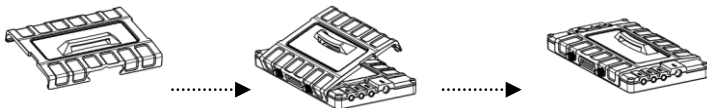


## Transformer 720p display + Full Panel Viewer

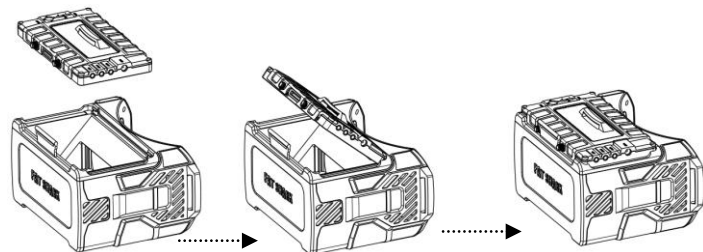
Step1: Take off the cap



Step2: Clip the cap



Step3: Place the display as shown below, antenna connector in the front



## Features

- 5.5" LCD screen with 1280\*720p resolution
- FOV 47 degrees (full panel viewer) / 55 degrees (binocular viewer)
- Support 16:9 and 4:3 analog display
- Support side by side image for binocular viewing (analog only)
- High definition media interface for 720p HD display
- Built-in 5G8,32CH antenna diversity receiver

## Headset Operation

### Controls:

Within 10 seconds of powering on, the display modes can be cycled through and changed by depressing the joystick. After 10 seconds the mode becomes locked (to prevent accidental changing of display mode during use). Reconnecting the power resets the ability to change modes (for 10 seconds).

### Display Control:

Pressing left/right on the joystick increases/decreases contrast

Pressing forward/backward increases/decreases brightness.

Short Press down to change display mode in following order:

RF SPLIT/ AV SPLIT /RF 16:9 / RF 4:3 / AV 4:3 / HD.

Long press down rotates the image 180 degree (for use with full panel viewer).

### Channel Select:

Press the up/down channel select switches causes the channel to change in the corresponding direction.

### Volume Control:

Audio output is set on high for use with adjustable volume style earphones (sold separately). There is no volume control.

### Low Battery Warning:

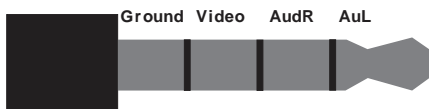
Audio warning if input voltage drops below 6.8V

### AV Cable Pin out

#### 3.5mm AV Connector:

Yellow: Video, White: Audio

Left, Red: Audio Right



**HD Input:**

The HD port can be connected to HDMI devices via the high definition media mini port. Recommend to first connect to the HDMI device then apply the power from the battery (allow the HDMI device to initiate using power supplied through the cable by the host device before powering goggles). Disconnect power when switching between devices to clear the settings.

Note: Most HD connectivity issues are due to either incorrect monitor settings or faulty cable. Before assuming the HD port is defective, try with alternative HDMI sources and alternative cables. HDMI cables may fracture over time at connector flex points.

**Diversity Receiver:**

The diversity receiver has two SMA connectors marked Primary and Secondary. The purpose of diversity receiver is to combine coverage of a direction and omni antenna. If using with a single antenna (omni or directional), place on Primary SMA only. If using with a directional AND an omni, place the omni on Secondary SMA and the directional on Primary SMA.

**18650 Battery Holder (batteries not included):**

The Fat Shark 18650 Battery Holder is compatible with commonly available 18650 style Li-Ion packs to provide a huge capacity power supply. The holder has a row of stylish blue LED indicators to indicate remaining capacity (4 levels) to prevent a sudden power/vision lost. It seats securely in the headset strap pocket on back. Batteries must be removed from holder and charged via external charging (charger and batteries not included).

**Specification (FSV1101 Monitor):**

<b>Electrical</b>									
●	Receiver: 4 Bands, 32 Channels, 5G8Antenna diversity receiver								
●	<b>Channel</b>	<b>CH1</b>	<b>CH2</b>	<b>CH3</b>	<b>CH4</b>	<b>CH5</b>	<b>CH6</b>	<b>CH7</b>	<b>CH8</b>
	Fat Shark:	5740	5760	5780	5800	5820	5840	5860	5880 Mhz
	Race Band:	5658	5695	5732	5769	5806	5843	5880	5917 Mhz
	Band A:	5865	5845	5825	5805	5785	5765	5745	5725 Mhz
	Band E:	5705	5685	5665	5645	5885	5905	5925	5945 Mhz
●	Working Voltage: DC input 7- 13V								
●	500ma@7.4V (RF mode) / 320ma@7.4V (AV mode)								
●	Channel: selected by buttons (up/down)								

**Ports**

- 1 x Audio out (volume adjustable by earphone, 3 pole 3.5mm connector)
- 1 x DC in (5mm DC barrel)
- SMA RF in (2)
- 1 x AV IN
- 1 x AV OUT
- Mini High Definition Media in
- Micro USB for firmware upgrade

**Mechanical**

- Grey/Orange plastic
- Threaded tripod mount, compatible snap fit with viewer modules

**Display**

- 5.5" LCD Screen, 720P No Blue Screen, true snow if no signal
- Resolution: 1280\*720p, True 720P HD
- Display Ratio: 16:9 / 4:3
- Brightness: 400cd/m<sup>2</sup>
- Working environment: -20~60°C
- PAL or NTSC auto selection
- Operating Language: English Only
- OSD Icons: Receiver Band, Receiver Channel, Brightness, Contrast, disappear after 2s
- OSD menu for display mode selection:  
1. RF SPLIT 2.AV SPLIT 3. RF 16:9 4. RF 4:3 5. AV 4:3 6.HD

**Operation**

- Exceed 10s after power on, display mode selection is not available
- Auto save settings after power off

**Controls**

- Channel/band up button
- Channel/band down button
- Brightness / Contrast 5 way joy switch

## Specification (FSV1102 Binocular Viewer):

<b>Mechanical</b>	
●	Grey/Orange, black (removable) face foam
●	3 harness head strap (side, top)
<b>Display</b>	
●	Resolution: 640 x 480 (VGA)
●	FOV: 55 degrees
●	Display Ratio: 4:3
<b>Optics</b>	
●	Direct view, 3.6X binocular magnifier
●	Adjustable focus (0 to -4dpt)
●	Adjustable IPD (55 mm to 76mm)

## Specification (FSV1103 Full Panel Viewer):

<b>Mechanical</b>	
●	Grey/white, black (removable) face foam
●	3 harness head strap (side, top)
<b>Display</b>	
●	Resolution: 1280*720 (720p HD)
●	FOV= 47 degrees (16:9 mode)
●	Display Ratio: 16:9 / 4:3
●	Brightness: 200 cd/m2 (50% brightness loss due to viewer optics)
<b>Optics</b>	
●	Direct view optics, 2.5X binocular magnifier
●	Fixed IPD (55 mm to 76mm)
●	Interchangeable optics (accessory, sold separately)

## Trouble Shooting

Observation	Possible Cause/Solution
No image, display is completely dark	- No power supplied. Check power connections.
No image, display is glowing dark grey	- If using wireless module, switch to Rx display mode - If using AV in cable, check video source. - Ensure TX is on and camera connections solid
Poor image, dark or not enough contrast	- Adjust display with contrast/brightness joy switch
Lots of interference lines (horizontal lines)	- Check to see if cause is harmonic interference from 2.4Ghz RC controller (turn radio on/off). - Use CH1 on TX/headset (Ch1 not affected by 2.4Ghz) - Check correct frequency antenna is used - Choose a cleaner channel.
Short range	- Ensure correct antenna are installed - Check for other sources of interference - Ensure transmitter has clear LOS to headset. Test in wide open area, away from any obstructions
HDMI doesn't work	- Incorrect display mode settings (when connected to computer, make sure output to alternative monitor is selected) - Faulty HDMI cable/adapters - Ensure source is set to 720p Before concluding the HDMI is faulty, test with alternative HDMI source and different cables

## Warranty

The system can be exchanged for a new unit within 15 days for any manufacturing defects if returned in new condition. The video headset will be warranted for repair for 2 years if no signs of excessive use. Buyer will be responsible for shipping costs. If beyond the warranty period we will provide repair services.