



Ⓜ Important note

## ATTITUDE V3 MODEL FSV1045

Item no. 1461853

Dear customer,

Please note that the 5G8 Receiver Module described in the user manual is not included in the delivery content.

Thank you for your understanding!

Your Conrad team

This is a publication by Conrad Electronic SE, Klaus-Conrad-Str. 1, D-92240 Hirschau ([www.conrad.com](http://www.conrad.com)).

All rights including translation reserved. Reproduction by any method, e.g. photocopy, microfilming, or the capture in electronic data processing systems require the prior written approval by the editor. Reprinting, also in part, is prohibited. This publication represent the technical status at the time of printing.

Copyright 2016 by Conrad Electronic SE.

\*1461853\_V1\_0716\_02\_IPL\_hs

# FAT SHARK

## RC VISION SYSTEMS

**ATTITUDE V3  
MODEL FSV1045**

**USER MANUAL**



**Revision A 09/10/2015**

For more product information, please visit:

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

All Rights Reserved

## Contents

Product Contents .....	3
Controls .....	5
Head Tracking Menu Navigation .....	6
AV in/out Port .....	7
Recording Video .....	7
Using an External Receiver .....	7
Accessories .....	7
700TVL CMOS Camera (FSV1204).....	7
Diopter Lens (FSV1601) .....	7
Adjustable Earphones (FSV1605).....	8
AV Cable (FSV2003).....	8
Head Tracker Data Cables.....	8
Black FacePlate (FSV2617).....	8
Specifications .....	9
Operational Advice .....	11
Warranty .....	11
Trouble Shooting .....	12

## Introduction

Congratulations on purchasing Fat Shark Attitude V3 FPV video goggle integrated with modular receiver bay, interlaced 3D solution and head tracking. To ensure your continued enjoyment, please take the time to thoroughly read through this operating manual before using.

## Product Compatibility

The Attitude V3 has been designed to adhere to established video standards and is compatible with any product also adhering to accepted video standards. Due to the high number of different manufacturers and variation in quality, it's impossible for us to have tested with every product combination and some troubleshooting may be required if mix/matching components. The Attitude V3 has been thoroughly tested with ImmersionRC gear. For best results and no compatibility issues, Fat Shark recommends ImmersionRC gear for your accessory products.

### ***IMPORTANT!!!! Product Warning!!!!***

***DO NOT LEAVE HEADSET EXPOSED TO DIRECT SUNLIGHT. SUNLIGHT WILL MAGNIFY THROUGH THE OPTICS AND BURN HOLES IN THE LCD COLOR FILTER THIS WILL NOT BE COVERED BY WARRANTY. KEEP GOGGLES IN PROTECTIVE CASE WHEN NOT IN USE***

# Product Contents

**Carry Case**



**Attitude V3 Headset**



**5G8 Receiver Module  
(32ch with RaceBand)**



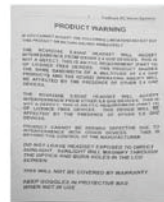
**SpiroNET Circular  
Polarized Antenna**



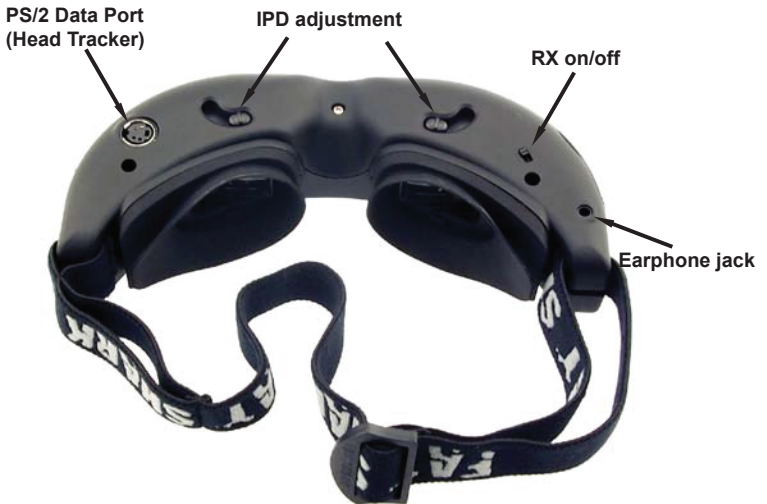
**1000mAh Battery  
(and discharge lead)**



**Manual**



# Controls Diagram



## Controls

**Brightness/contrast/2D or 3D display control:** Pressing left/right increases/decreases display contrast. Pressing forward/back increases/decreases display brightness.

**Display mode selection:** Goggles will boot up in 2D analog. Vertically depressing the contrast/brightness button scrolls through the following modes:

Default: 2D

Single press: 3D

Second press: 3D with left and right image swapped

Third press: returns to 2D

**RX power switch:** The receiver module power is controlled by this switch. Turn off RX module to avoid video conflict with video source via the AV cable.

**Channel select:** Rocking the channel select switch forward and back will cause the channel to incrementally increase/decrease. Audio beep sounds on channel change. A long beep sounds on channel top and bottom limits.

**Note:** Fat Shark only guarantees compatibility with Fat Shark or ImmersionRC transmitters.

Name	CH1	CH2	CH3	CH4	CH5	CH6	CH7	CH8
Fat Shark/IRC	5740	5760	5780	5800	5820	5840	5860	5880
Band E	5705	5685	5665	5645	5885	5905	5925	5945
Band A	5865	5845	5825	5805	5785	5765	5745	5725
RaceBand	5658	5695	5732	5769	5806	5843	5880	5917

### Head tracker menu/reset:

Activated by a vertical press on the channel rocker switch.

**Low battery warning:** Audio warning if input voltage drops below 6.8V

**Volume control:** There is no volume control - volume level is set at high. Please use with adjustable earphone accessory for volume control.

# Head Tracking Menu Navigation

To enter head tracking menu, hold head tracker button while inserting battery and immediately release the button after barrel insertion.

<b>Beep Code</b>	<b>Mode</b>
1 short beep:	P/T on ch 5/6
2 short beep:	P/T on ch 6/7
3 short beep:	P/T on ch 7/8
4 short beep:	Reverse pan direction
5 short beep:	Reverse tilt direction
1 long beep:	Adjust servo center point*
1 short beep:	Restore factory defaults
2 long beep:	No selection made, automatically exits menu

\* Press HT button to gain manual control of the camera with the headset. Adjust camera to desired center position by moving headset and press button to set new camera center. Note that if your servos are not near the center point before adjusting, the servo travel may be limited.

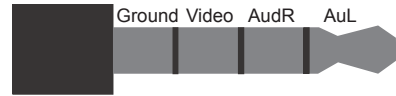
For a complete and up to date list of compatible RC radios and their setup, a head tracking sticky thread is maintained at [www.FPVlab.com](http://www.FPVlab.com) under SPONSORS GATE/FAT SHARK

## **Operation Notes:**

Head tracker analog tracking is always on. Depressing button re centers head tracker.

## AV in/out Port

**RCA Connector:** Yellow: Video, White: Audio Left, Red: Audio Right



## Recording Video

Connect AV cable to AV out port on right side of headset. Connect recording device to cables and set up as per manufacturer directions.

Note: Cables pins are not all the same (see above chart), be sure to connect to headset using the included cable.

## Using an External Receiver:

Use the AV cable to connect headset to the RCA AV port of external devices. To share the base station power supply with your goggles, pick up a 3m Dominator AV cable accessory from your retailer. Note; internal receiver must be shut off to properly display external AV.

## Accessories

### 700TVL CMOS Camera (FSV1204)

The 700TVL CMOS Camera is a newly upgraded FPV camera providing not just higher resolution but also with high fidelity of chromatics. 2.8mm IR coated lens for wide angle 100 degree FOV; ideal for fixed camera piloting. Camera is NTSC/PAL selectable.



### Diopter Lens (FSV1601)

For near sighted users, diopter lens insert sets are available that include -2, -4 and -6 dpt. See below inserting location. Lens orientation is not critical.





## ***Adjustable Earphones (FSV1605)***

For simplicity and minimalist controls, the Attitude V3 does not have volume control. Audio is outputting at max volume and needs to be adjusted to comfortable level via adjustable volume earphones.



## ***AV Cable (FSV2003)***

This 3 RCA Male to 4-pole Right Angle Cable allows you output the wireless signal from your Fat Shark headset to an external monitor or recording device. It can also be used to connect and display alternative video sources in the goggles.



## ***Head Tracker Data Cables***

Due to the various number of radios and aftermarket products, data cables are not included in the set. The following model numbers can be purchased through your retailer:

FSV2112: Futaba type radios (square connector)

FSV2113: JR type radios (3.5mm 3p prong)

FSV2114: ezUHF cable (PS/2 to PS/2)

FSV2115: Spektrum radios

## ***Black FacePlate (FSV2617)***

The fan-equipped faceplate adds comfort and prevents fogging. Remove the eyecups and snap in place. The battery balance lead provides power for the fan and runs in 10m cycles with auto power off to prevent accidental discharge of the battery.



# Specifications

## Headset Specifications

### **Optics:**

FOV (field of view):	32° diagonal (Image size: 1.3m @ 2m)
Type:	Plastic optic module
Interpupillary Distance(IPD):	59 to 69 mm (adjustable)
Optional Diopter Lens Inserts:	-2, -4, -6 dpt

### **Display:**

Full color LCD polarized LED backlit  
Binocular display (640 X 480 VGA) NTCS/  
PAL auto selecting  
2D / interlaced 3D

### **Audio:**

Stereo  
(requires adjustable volume earphone)

### **User Controls:**

Channel selection/ head tracker reset  
Mode selection (wired/wireless)  
Contrast/ brightness control/ 2D or 3D mode  
selection

### **Electrical:**

Power supply:	7 - 13 V (2S/3S supply)
Power consumption:	320mA wireless 200mA direct mode (RX off) (@7.4V nominal)
Battery:	7.4V, 1000mAh Li-po
DVR:	None
RF Modules (Optional):	multi channel and band support (modular RF)
Head Tracker:	9DOF 2-axis

### **Interface:**

3.5mm AV in/out port  
Power in port  
3.5mm stereo earphone port  
Mini DIN head tracker data port

### **Accessories:**

5G8 32ch RaceBand RF module  
5G8 SpiroNET CP antenna  
7.4V,1000mAh Li-po battery  
Battery discharge adapter

### **Mechanical:**

Ergonomic molded headset w/ adjustable  
headband

Dimensions:	169 x 88 x 41.5
Weight:	167 g

### **Packaging:**

Size:	0.5kg, 207 x 132 x 62mm
-------	-------------------------

# 5G8 RaceBand Receiver Specifications:

**Electrical:**

Supply Power: 3.3~5 V  
 RX Sensitivity: ≤ -90 dB  
 RF Input Level: -90 dBm~+5 dBm  
 Video Format: NTSC/PAL

**Operation:**

Operating Temperature: -10~65 °

**Mechanical:**

Size: 42 x 25 mm  
 Weight: 10.8 g

**Channel Chart:**

DIP Switch	Band	Name	CH1	CH2	CH3	CH4	CH5	CH6	CH7	CH8
0-0	1	Fat Shark / ImmersionRC	5740	5760	5780	5800	5820	5840	5860	5880
0-1	2	Band E	5705	5685	5665	5645	5885	5905	5925	5945
1-0	3	Band A	5865	5845	5825	5805	5785	5765	5745	5725
1-1	4	RaceBand	5658	5695	5732	5769	5806	5843	5880	5917



## Operational Advice

- **For best performance**, select a channel that has the least amount of interference. While the transmitter is turned OFF, turn on the video headset and look at the screen as you check each channel. Clear channels will have a consistent static background. Channels with interference will have horizontal static lines.
- **Always perform a range test before flying.** This includes AV and RC controls. Some RC receivers can be affected by the proximity of other electronic devices particularly the AV TX.
- Try to space out your components as much as possible to avoid interference to your RC control range (keep stuff away from RX)
- Until experienced, practice flying in a familiar area to avoid becoming disorientated.
- Due to antenna characteristics, there is a “null” in line with antenna direction. You may experience excessive video breakup when flying overhead.
- 5.8Ghz signal strength drops off very fast, stay safely within solid AV range.
- **For maximum distance** it is very important that a clear line of sight exists between the transmitter and the video headset. 2 of the worst causes of interference are human bodies and reinforced concrete.
- Place your TX antenna in open area in a vertical orientation
- **Multipathing** (reflections off buildings/ tall objects) causes signal cancellation and result in broken video. Fly in open areas away from buildings or other tall structures (i.e. barns, hills).
- **5.8Ghz AV with 2.4Ghz RC controllers:** 2.4Ghz may cause harmonic interference on Ch2 – Ch7 of the 5.8Ghz AV (Ch1 not affected). The headset has been equipped with a high pass filter that will allow the system to work with CE certified 2.4Ghz RC controllers. However, the filtering may be insufficient to remove noise from overpowered non CE certified controllers.  
If you experience interference from your RC radio, change the AV channel to channel 1.
- Although you don't require any license to operate this device, you are still legally responsible for operating in a responsible manner.

## Warranty

The system can be exchanged for a new unit within 30 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.

## Trouble Shooting

If your problem can't be solved here, please visit our support forum at [www.FPVLAB.com](http://www.FPVLAB.com) under SPONSORS GATE/ FAT SHARK RC VISION SYSTEMS. Any direct support enquires will be first directed to this forum for the benefit of all customers.

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, turn on RX power on bottom of headset. - If using AV in cable, check video source. - Ensure TX is on and camera connections solid - Ensure lens cap is removed from camera - Trying to power a 12V camera with the 5V TX supply (need to connect 12V camera direct to RC pack).
Complete white screen	LCD driver has failed and needs to be replaced under warranty. Contact your retailer.
Lots of interference lines (horizontal lines)	- Choose a cleaner channel.
Lots of interference lines (horizontal lines) when using 5.8Ghz receiver	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
Head tracker not working but can hear beeps (can enter and navigate beep menu)	- Ensure headset is turned on before RC radio - Review controller manual for correct settings - Check servos are plugged into correspondingly selected channels
Head tracker not working, and no beeps (can't enter nor navigate beep menu)	- Cable was modified and resulted in voltage applied to signal line (fried HT) - Mated to an aftermarket channel mixer and wired wrong resulting in voltage applied to signal line - Incorrect installation of aftermarket UHF RC system resulting in voltage applied to signal line .
Head tracker stops working after short time	Auto disengage function activated. Follow menu instructions to turn off.
Short range	- Ensure 5.8Ghz antenna were installed - Turn off transmitter and check for other sources of interference - Ensure transmitter has clear LOS to headset. Test in wide open area, away from any obstructions
Short range (con't)	- Ensure that a compatible antenna is installed. Do not use other manufacture antenna, they may be dual band or may be reverse SMA (no center pin to connect to receiver)
White dots on LCD display	You were careless and left goggles exposed to sun. Sun burnt off LCD color filter.