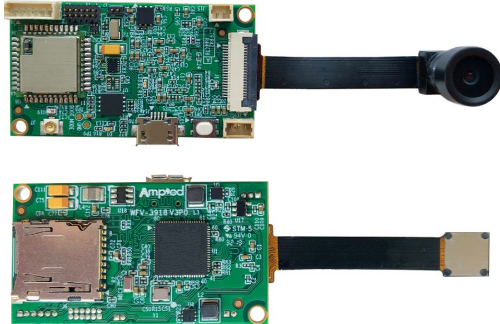


**WiFi Video Module  
WFV3918**

Amp'ed RF Technology, Inc.

## WFV3918 Product Specification



### Description

Amp'ed RF Tech presents the WFV3918 Wi-Fi dual band, 2.4/5GHz video module. The WFV3918 is a small footprint low cost RF video module, supporting 720p video resolution, both live streaming and SD card storage, up to 300m range line-of-sight (5Ghz band). Day/night camera options are offered. Intended to help customers shorten product development cycles and reduce cost, this module is ready to go. Typical applications include:

- Drone/RC vehicle camera
- Home security
- Remote audio & video transmission
- Smart home control

### Features

#### Hardware

- Wi-Fi: ACC1340
- CPU: AK3918E
- SD storage up to 128GB
- 25mm x 45mm
- Day/night option
- PIR motion sensor support
- Mems microphone
- Speaker output

#### Video

- 1280x720P, 25 fps
- H.264/MJPEG encoding

#### WLAN

- 802.11a/b/g/n
- Dual Band: 2.4/5GHz
- Output Power, +24dBm for 5GHz
- Soft Access Point
- Security: WPAI/WPA2, AES, WEP
- 300m line-of-sight range

## Contents

<b>1. Hardware Specifications</b> .....	<b>4</b>
1.1. Recommended Operating Conditions .....	4
1.2. Absolute Maximum Ratings .....	4
1.3. I/O Operating Conditions.....	4
1.4. Current Consumption .....	4
1.5. Selected RF Characteristics.....	5
1.6. Pin Assignment/Connectors.....	6
<b>2. Module Drawing</b> .....	<b>8</b>
<b>3. Hardware Block Diagram</b> .....	<b>9</b>
<b>4. Startup guide</b> .....	<b>9</b>
<b>5. Ordering Information</b> .....	<b>13</b>
<b>6. Revision History</b> .....	<b>13</b>

## 1. Hardware Specifications

General Conditions (VIN= 5.0 V and 25°C)

### 1.1. Recommended Operating Conditions

Rating	Min	Typical	Max	Unit
Operating Temperature Range	0	-	40	°C
Supply Voltage VIN	4.5	5	5.5	Volts
Signal Pin Voltage	-	3.3	-	Volts
RF Frequency for 2.4G (optional)	2400	-	2483.5	MHz
RF Frequency for 5G	5150		5850	MHz

### 1.2. Absolute Maximum Ratings

Rating	Min	Typical	Max	Unit
Storage temperature range	-40	-	+70	°C
Supply voltage VIN	-0.3	-	+6.0	Volts
I/O pin voltage VIO	-0.3	-	+4.8	Volts
RF input power	-	-	-5	dBm

### 1.3. I/O Operating Conditions

Symbol	Parameter	Min	Max	Unit
V <sub>IL</sub>	Low-Level Input Voltage	-	0.6	Volts
V <sub>IH</sub>	High-Level Input Voltage	1.3	-	Volts
V <sub>OL</sub>	Low-Level Output Voltage	-	0.2	Volts
V <sub>OH</sub>	High-Level Output Voltage	2.95	-	Volts
I <sub>OL</sub>	Low –Level Output Current	-	4.0	mA
I <sub>OH</sub>	High-Level Output Current	-	4.0	mA

### 1.4. Current Consumption

VIN=5v	Avg	Unit
Idle	50	mA
Video streaming 720P	135	mA
I <sub>peak</sub> : system maximum peak current draw	300	mA

### 1.5. Selected RF Characteristics

Parameters	Conditions	Typical	Unit
Antenna load		50	ohm
<b>Wi-Fi Receiver 5GHz 11n</b>			
Sensitivity	BPSK 6.5Mbps@PER<10%,Nss=1	-91	dBm
Sensitivity	QPSK 13Mbps@PER<10%, Nss=1	-88	dBm
Sensitivity	16QAM 26MbpsPER<10%,Nss=1	-83	dBm
Sensitivity	64QAM 65MbpsPER<10%,Nss=1	-72.5	dBm
<b>Wi-Fi Transmitter 5GHz, 11n</b>			
Output Power	802.11n MCS-1	24	dBm

### 1.6. Camera Specifications

Parameters	Specifications	Unit
Focusing Range	180	cm
Focal Length	2.4	mm
F Number	2.2	
FOV (D)	130°	
Optical Distortion	<-28%	
Optical format	1/4	inch
Resolution	1280*720	
Frame rate	30fps	
Sensor Model	JX-H62	
Night vision distance	5	meter

Note: IR LEDs and lens are included in the sensor unit.

### 1.7. Pin Assignment/Connectors

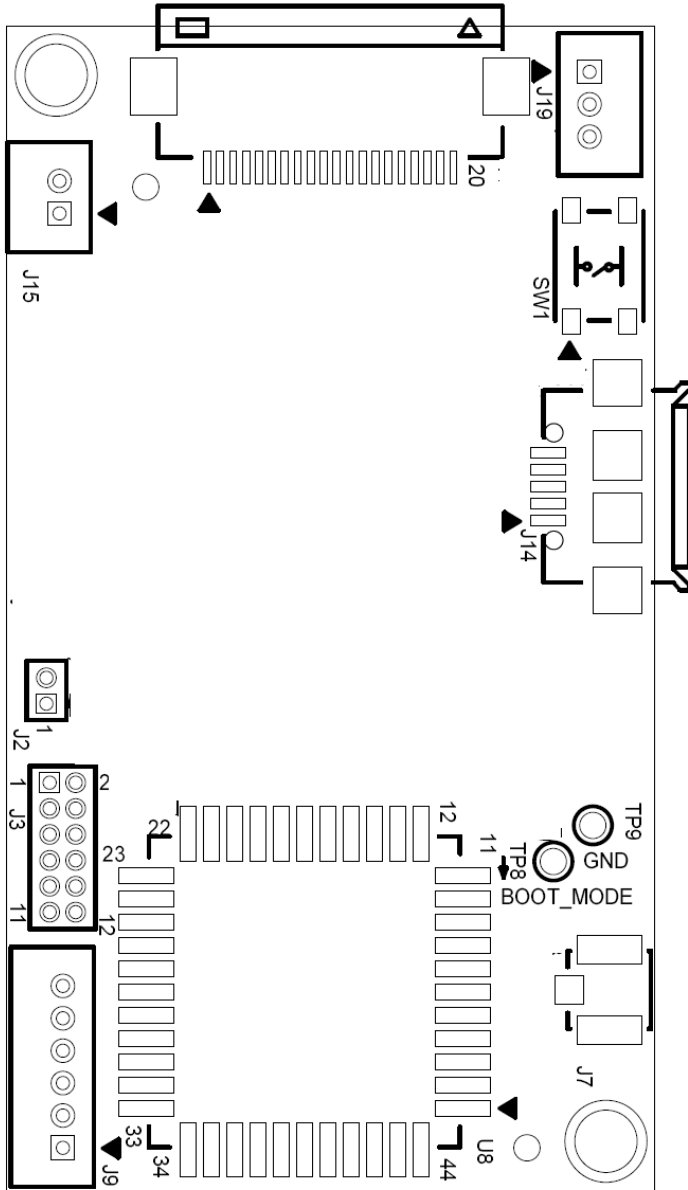
J5 (Manufacturer P/N : 653002114822)			
Assignment	Type	Pin #	Description
VDD		1	VIN from BATT, 3.3-5.0V
GND		2	Ground
J1 (Manufacturer P/N : FH12-20S-0.5SH(55))			
Assignment	Type	Pin #	Description
GND		1	
I2C_SDA	I/O	2	
AVDD		3	AVDD 3.0V
I2C_SCL	I/O	4	
CIS_RSTN		5	
CIS_VSYNC		6	
CIS_HREF		7	
DVDD		8	VDD 1.8V
DOVDD		9	AVDD 3.0V
VID9		10	
MCLK	I/O	11	
VID8		12	
GND		13	DGND
VID7		14	
PCKL	I/O	15	
VID6		16	
VID2		17	
VID5		18	
VID3		19	
VID4		20	
GND		21	
GND		22	

J3 (Manufacturer P/N : 161012106AWG1S050001)			
Assignment	Type	Pin #	Description
I2C_SDA	I/O	1	
I2C_SCL	I/O	2	
CIS_PWDN		3	
AK_TXD1		4	
RXD2	I/O	5	
AK_RXD1	I/O	6	
TXD2		7	
GPIO 15		8	
GND		9	
PWR_LED		10	
GPIO 47		11	
GPIO 11		12	
J2 (Manufacturer P/N : 16101102AWG1S05000X)			
Assignment	Type	Pin #	Description
GND		1	
HPOUTL	O	2	Headphone output
J9 (Manufacturer P/N: WE 653006114822)			
Assignment	Type	Pin #	Description
5V	O	1	
GND		2	
IR-CUT-A	O	3	
IR-CUT-B	O	4	
IR-LEDs control	O	5	
Photosensitive signal	I	6	
J19 (Manufacturer P/N : WE 653003114822)			
Assignment	Type	Pin #	Description
GND		1	
5V	O	2	
PIR signal	I	3	Active high

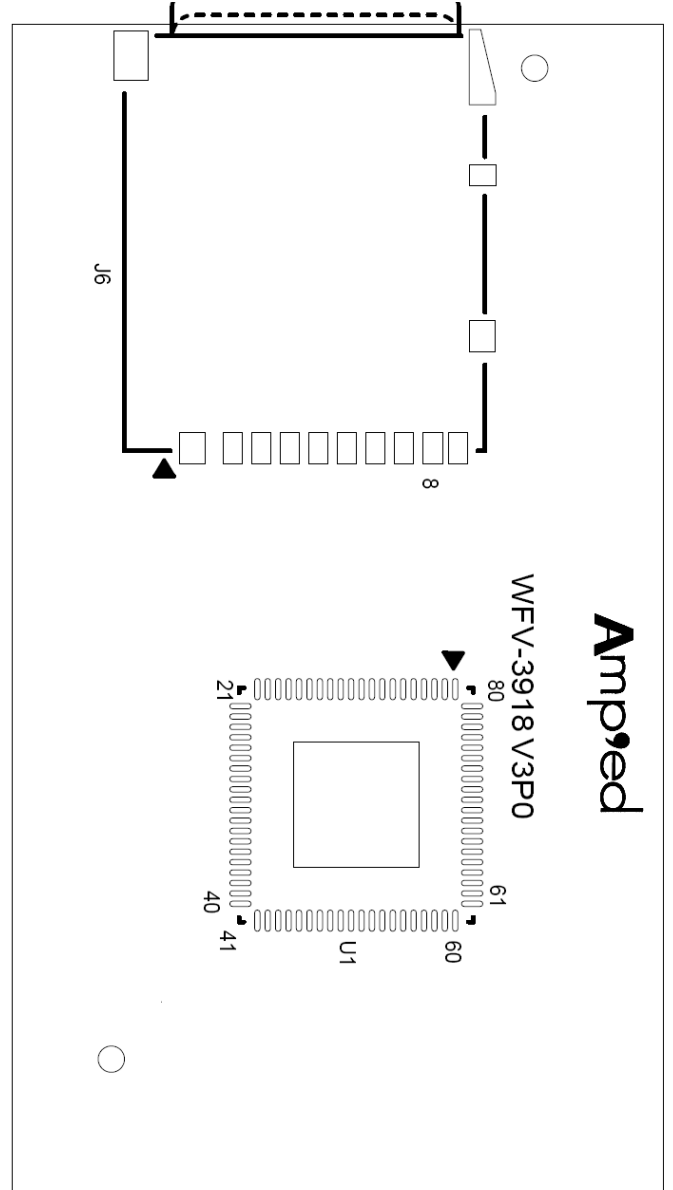
## 2. Module Drawing

Size: 25 mm x 45 mm

Top view

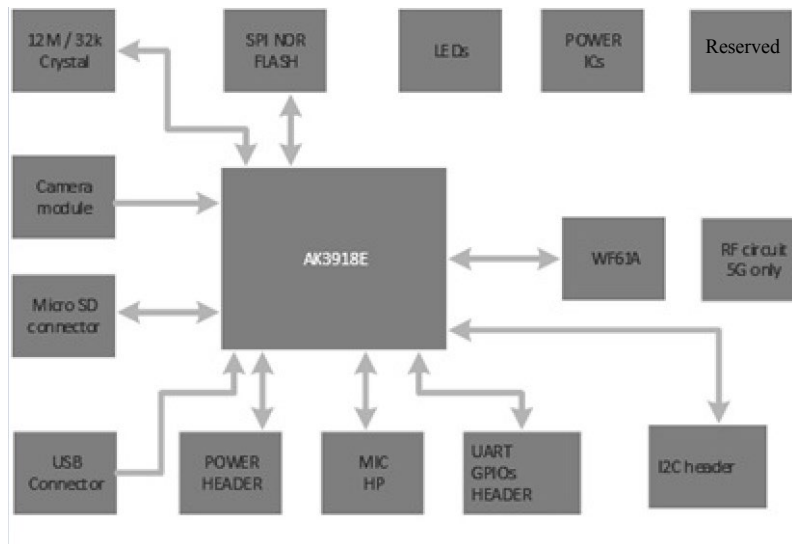


Bottom view





### 3. Hardware Block Diagram



### 4. Startup guide

4.1. Power up the video module by applying Vin and GND to J5 pins 1 & 2.

Note1: the USB connector does NOT supply Vin power.

Note2: suggested mating connector to J5: 653002114822, Mfg: WE, pitch: 1.25mm

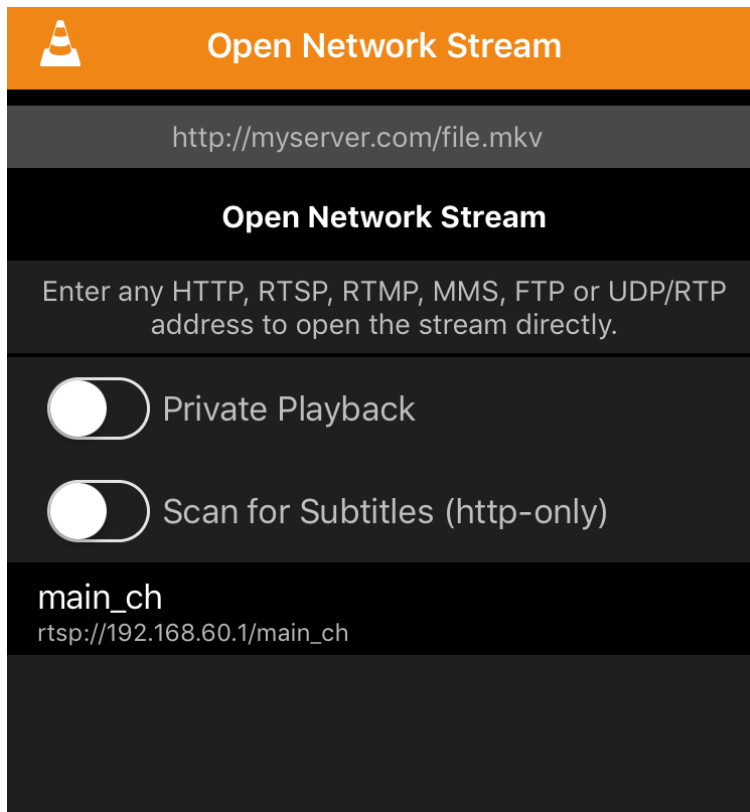
4.2. Download and install the app “VLC” from “Google Play” or “Apple Store”. Note that other video players supporting RTSP protocol will also work: Easy Player, RTSP Player, etc... The video latency will vary from player to player depending on the buffer size.

4.3. Connect the WiFi from mobile phone.

- The SSID is “ART\_IPCAM\_XXXXXX”, where XXXXXX is the session MAC address of the device.
- The default password is “12345678”.
- The WFV3918 will assign the mobile phone an IP Address: 192.168.60.20 (to the first phone connection and incrementing after that).
- The default startup mode is AP mode (user connects directly to the module using a PC or mobile phone).

4.4. Launch the app, VLC, and select the network stream RTSP option using this channel:

`rtsp://192.168.60.1/main_ch`. This RTSP channel is not the same as the phone’s IP Address above.

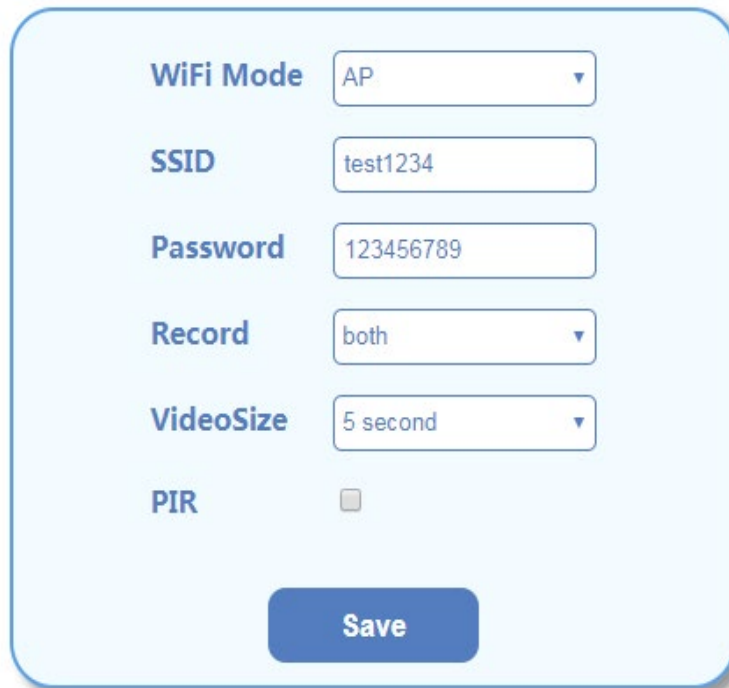


4.5. For technical support, please contact us at: [support@ampedrftech.com](mailto:support@ampedrftech.com)

## 5. Network Setup

(Note: this feature is supported in software versions: 190613 or later)

- When joined in AP mode, enter this address into the connected PC or Phone's browser: 192.168.60.1. Or when joined in STA mode, enter the router assigned address into the browser.
- The following HTML page will load into the browser for setup:



WiFi Mode:	select AP mode or Station mode
SSID:	the router which will be joined
Password:	router password
Record:	both: save video to SD card and send over Wi-Fi Stream over Wi-Fi: send over Wi-Fi only Store to SD Card: use SD card only
PIR/Video Size:	Select number of seconds to store each PIR trigger (when enabled): 1-300 seconds

The password is not used in AP mode.

### 5.1. STA mode usage

Check your joined router for the assigned IP address. Replace the default streaming address: 192.168.60.1, with the assigned (DHCP) address from your router.

## 6. Data over UART2

(Note: this feature is supported in software versions 190712 or later)

UART2 is reserved for received data, and will be connected via TCP socket. Any received data will be sent to the UART2.

- 115200 baud, no flow control

## 7. Restore factory settings

Keep pressing the button (SW1) for more than 5 seconds, less than 10 seconds. The system will reset to its initial state

## 8. Ordering Information

Part Name	Description
WV3918	720p Video module, 2.4/5Ghz dual band WiFi
WV3918-IR	Infra-red sensor video module

## 9. Revision History

Date	Revision	Description
1-May-2018	1.0	Initial release
18-Jan-2019	1.1	Updated SSID name
28-Jan-2019	1.2	Updated picture and diagram
22-Feb-2019	1.3	New usage instructions
11-July-2019	1.4	Added IR option. Added HTML setup page
17-July-2019	1.5	Add connector part numbers
15-Aug-2019	1.6	Add SD Card max size
17-Sep-2019	1.7	Add Reset Description Add Headphone connector Updated block diagram and module drawing