

**WiFi Video Module**  
**WFV3100**

Amp'ed RF Technology, Inc.

## WFV3100 Product Specification



### Description

Amp'ed RF Tech presents the WFV3100 Wi-Fi dual band, 2.4/5GHz video module. The WFV3100 is a small footprint low cost RF video module, supporting 1080p video resolution, both live streaming and SD card storage, up to 300m range line-of-sight. Very low power mode results in 18 months of battery life. 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:

- Home door video monitor
- Home security
- Remote audio & video transmission
- Drone/RC vehicle camera

### Features

#### Hardware

- Wi-Fi: ACC1340
- CPU: Ingenic T31
- SD storage up to 256GB
- 25mm x 45mm
- Day/night option
- Low power, up to 18 months battery life
- PIR motion sensor support
- Microphone
- Speaker output

#### Video

- 1080p, 25 fps
- H.265 encoding

#### WLAN

- 802.11a/b/g/n
- Dual Band: 2.4/5GHz
- Output Power, +23dBm for 5GHz
- Soft Access Point
- Security: WPAI/WPA2, AES, WEP
- 300m line-of-sight range

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## 1. Hardware Specifications

General Conditions (VIN= 3.9V and 25°C)

### 1.1. Recommended Operating Conditions

Rating	Min	Typical	Max	Unit
Operating Temperature Range	0	-	40	°C
Supply Voltage VIN/VBATT	3.0	3.9	5.0	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=3.9v	Avg	Unit
Idle (beacon interval 10)	120	uA
Video streaming 1080P	240	mA

Ipeak: system maximum peak current draw, IR not enabled	420	mA
Ipeak: system maximum peak current draw with IR sensor enabled	520	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	-80	dBm
<b>Wi-Fi Transmitter 5GHz, 11n</b>			
Output Power	802.11n MCS-1	23	dBm

### 1.6. Camera Specifications IR Option

#### 1.6.1. FOV136



Parameters	Specifications	Unit
Focusing Range	180	cm
Focal Length	2.3	mm
F Number	2.6	
FOV (D)	136°	
Optical Distortion	<18%	
Resolution	1080p	
Frame rate	25fps	
Sensor Model	H62	

### 1.6.2. FOV60



Parameters	Specifications	Unit
Focusing Range	50	cm
Focal Length	3.25	mm
F Number	2.8	
FOV (D)	60°	
Optical Distortion	<1%	
Resolution	1080p	
Frame rate	25fps	
Sensor Model	H62	

### 1.7. Pin Assignment/Connectors

J20 (Manufacturer P/N : 653002114822)			
Assignment	Type	Pin #	Description
VDD		1	VIN from BATT
GND		2	Ground

J18 (Manufacturer P/N : 161012106AWG1S050001)			
Assignment	Type	Pin #	Description
I2C_SDA/GPIO 28	I/O	1	I2C Data
I2C_SCL/GPIO 27	I/O	2	I2C Clock
CIS_PWDN		3	
TXD0	I/O	4	Uart0 TX
RXD1	I/O	5	Uart1 RX
RXD0	I/O	6	Uart0 RX
TXD1	I/O	7	Uart1 TX

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GPIO_38	I/O	8	GPIO (Default), Photosensitive
GND		9	
PWR_LED	I/O	10	IR PWR LED
GPIO_30	I/O	11	GPIO (Default), IR-LEDs control
GPIO_31	I/O	12	GPIO (Default), IR-CUT-InputB

J19		
Assignment	Type	Pin #
GND		1
MIPI_DATAN0	I/O	2
MIPI_DATAPO	I/O	3
GND		4
MIPI_DATAN1	I/O	5
MIPI_DATAP1	I/O	6
GND		7
MIPI_CLKN	I/O	8
MIPI_CLKP	I/O	9
GND		10
NC		11
SENSOR_RESET	I/O	12
I2CO_SDA	I/O	13
I2CO_CLK	I/O	14
MIPI_CLK	I/O	15
GND		16
VCC_5V		17
VCC_5V		18
VCC_3V3		19
GND		20
IRUCTP	I/O	21
IRCUTN	I/O	22
PIR	I/O	23

GND		24
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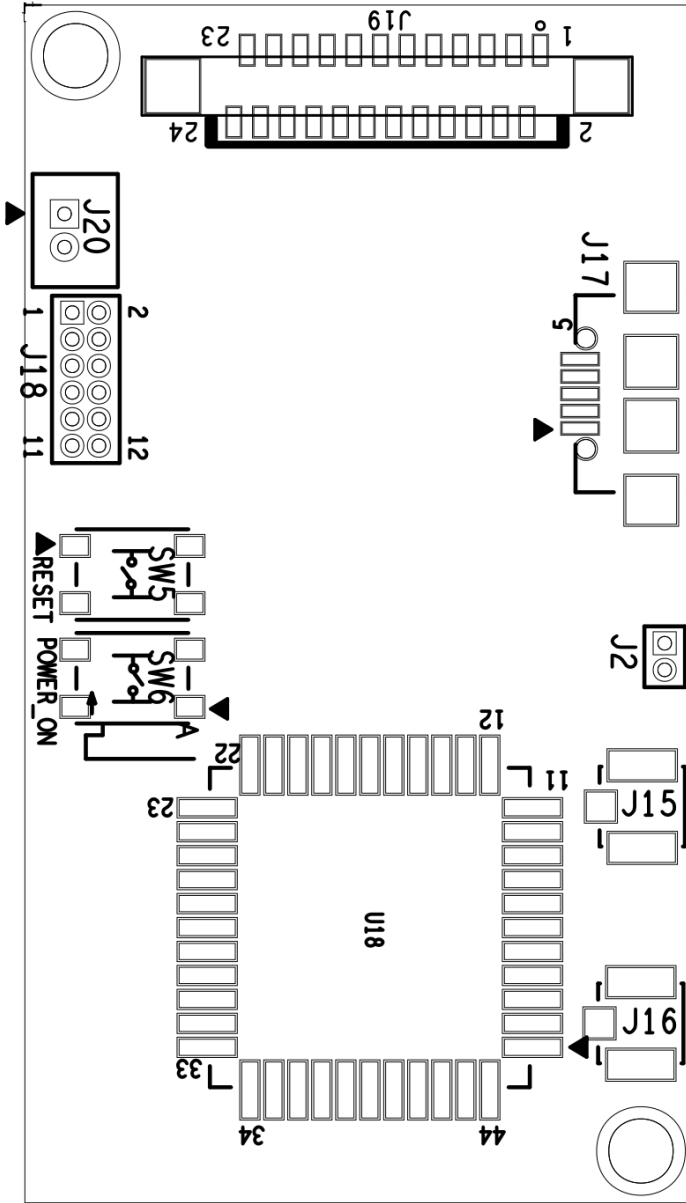
J2 (Manufacturer P/N : 16101102AWG1S05000X)			
Assignment	Type	Pin #	Description
GND		1	
HPOUTL	0	2	Headphone output



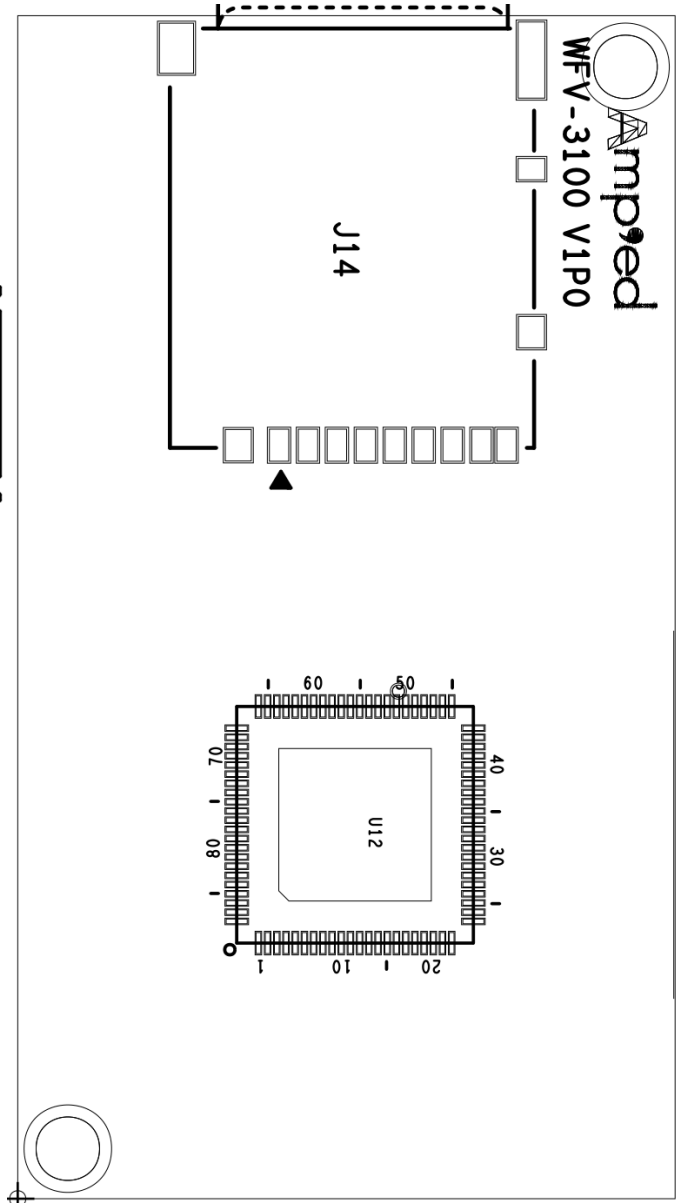
## 2. Module Drawing

Size: 25 mm x 45 mm

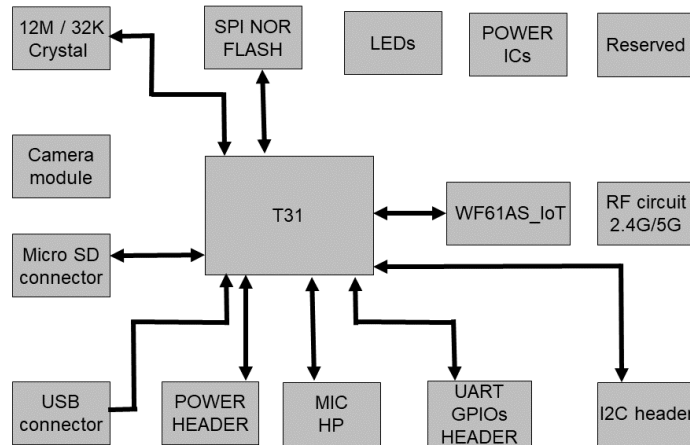
Top view



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

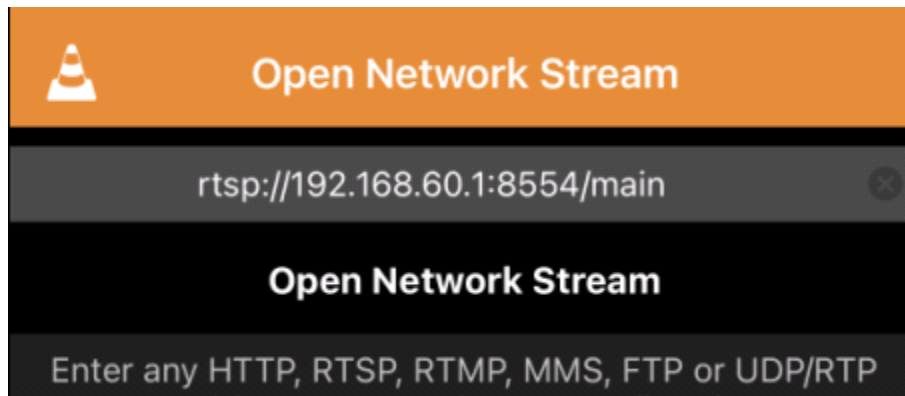
4.2. Download and install the app “VLC” from “Google Play” or “Apple Store”. Note that other video players supporting RTSP protocol will also work: Easy Player, RTSP Player, etc... The video latency will vary from player to player depending on the buffer size and setup.

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 WFV3100 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:

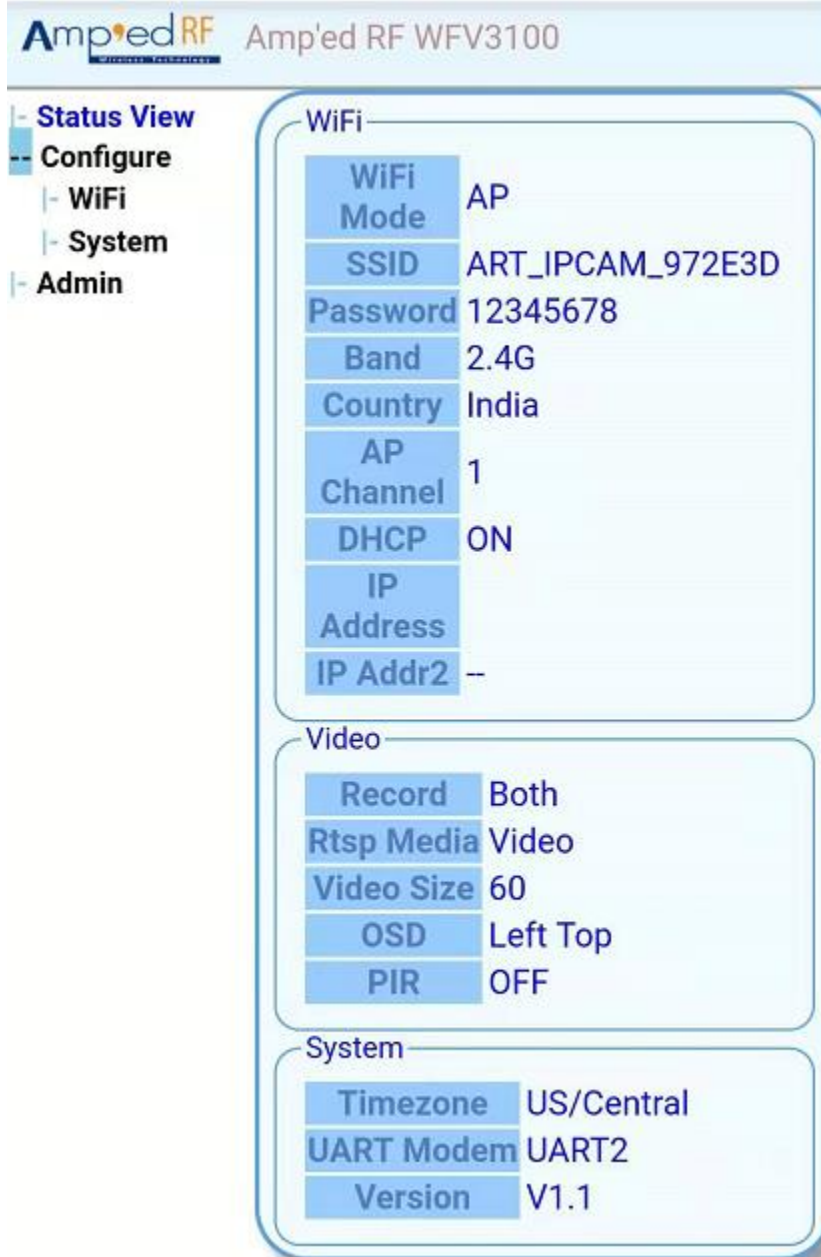
`rtsp://192.168.60.1:8554/main`. This RTSP channel is not the same as the phone’s IP Address above.



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

## 5. Network Setup

- 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 Status View:



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- Status View  
 - Configure  
   - WiFi  
   - System  
 - Admin

WiFi	
WiFi Mode	AP
SSID	ART_IPCAM_972E3D
Password	12345678
Band	2.4G
Country	India
AP Channel	1
DHCP	ON
IP Address	
IP Addr2	--

Video	
Record	Both
Rtsp Media	Video
Video Size	60
OSD	Left Top
PIR	OFF

System	
Timezone	US/Central
UART Modem	UART2
Version	V1.1

- The WiFi Configure web page for WiFi setup:

**WiFi Configure**

WiFi Mode: AP

SSID: ART\_IPCAM\_972E3

Password: 12345678

Band: 2.4G

Country: India

AP Channel: 1

DHCP:

IP Addr: 192 . 168 . 60 . 1

Netmask: 255 . 255 . 255 . 0

Gateway: 192 . 168 . 60 . 1

**Save**   **Save&Apply**

Note:  
1. Save&Apply: system will reset

- WiFi Mode: Select AP mode or Station mode
- SSID: Router network to join (not used in AP mode)
- Password: Router password (not used in AP mode)
- Band: Select 2.4G or 5G
- Country: Select country for WI-FI in AP mode
- AP Channel: Select channel for WI-FI in AP mode
- DHCP: Select dynamic IP address, otherwise configure static IP address
- Save: Save current configurations
- Save&Apply: Save current configurations and reset system

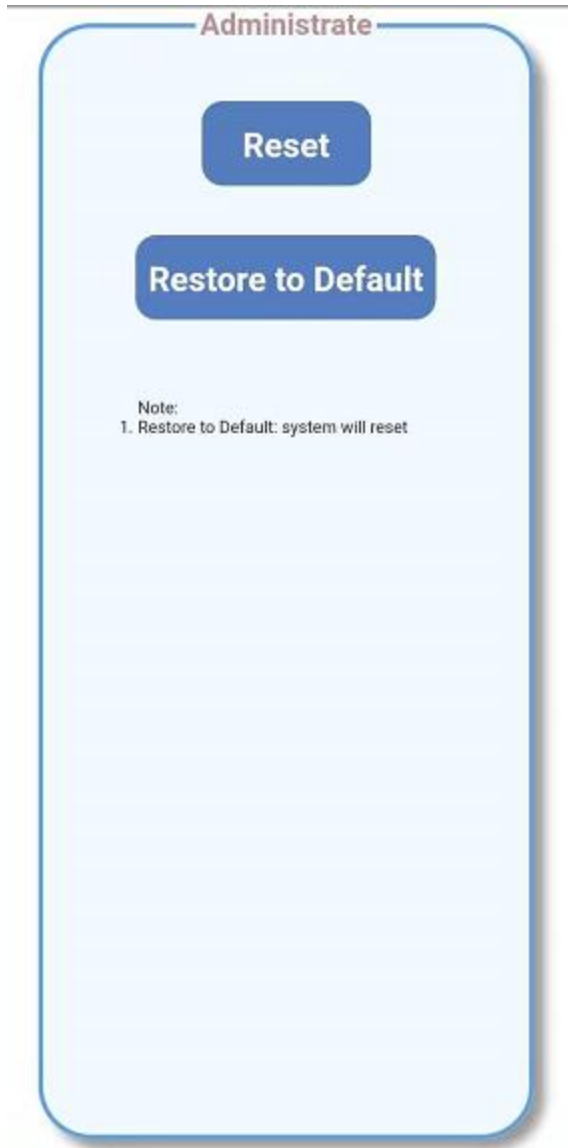
- The WiFi Configure web page for WiFi setup:

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- Timezone: Select the current time zone
- UART Modem: When enabled, incoming TCP data, corresponding to the Data Bypass Mode feature, will be routed to UART2
- Save: Save current configurations
- Save&Apply: Save current configurations and reset system

- The Admin web page for administrator:



Reset: Reset system.

Restore to Default: Restore the configurations to default settings.

### 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. Audio Support

### 6.1. Speaker output

Audio data can be sent from the remote application to the module's speaker out.

- Format: PCM compression, 16b, mono, 8K sampling rate

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- TCP: 4096 bytes per data block, 100ms intervals
- TCP Destination port is 6888

## 7. Restore Factory Settings

Press and hold the button (SW1) for 5-10 seconds. The system will reset to its initial state

## 8. Ordering Information

Part Name	Description
WFV3100-S	720p, 2.4/5Ghz dual band, FOV: 136
WFV3100-N	720p, 2.4/5Ghz dual band, FOV: 60
XXX-XX-B	The -B option indicates bulk packaging for higher qty orders: No battery case, individually bag packaged
Optional Accessories	Description
	(WFV3100 includes 1 image sensor above)
WFV-SPK	TBD (speaker)
WFV-FOV60	Image sensor, 720p, FOV: 60
WFV-FOV136	Image sensor, 720p, FOV: 136

WFV3100 contents (eval kit):

- WFV3100 video module
- One image sensor: FOV136 or FOV60
- Antenna
- Battery case (batteries not incl.)
- Individually boxed
- Integrated MEMS microphone (speaker no incl.)





## 9. Revision History

Date	Revision	Description
28-June-2021	1.0	Initial release.