
INTEGRATOR GUIDE FOR THE WMDA-118AN

Gemtek

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#1440

1 Specification

Product Name	Wireless Full HD Video/Audio Receiver
Model Number	WMDA-118AN
Host Interface	HDMI
Chipset solution	MCU STM32F105 MAC/BBP Amimon AMN2220 RF Amimon AMN3210
Memory	4Mbit Flash
Switch	Reset Button x 1
Dimensions	PCB 140 x 70 (mm)
LED	MAC (Green)
Operating Voltage	24V/20V/17V +/- 5%
Current consumption	8W maximum
Antenna	PIFA Type antenna; Peak Gain:3.5 dBi One antenna for Transmitter & Receiver Four antennas for Receiver One antenna for DFS Only
Frequency Band	5.15~5.35, 5.47~5.725, 5.725~5.825 (GHz) Depends on the country region
Channel Bandwidth	40MHz
Modulation	Orthogonal Frequency Division Multiplexing (OFDM)
Network mode	Uni-cast
DFS Support	Low-end DFS without additional RF Chain High-end DFS with additional RF Chain allowing to monitor additional DFS channel and immediate switch in case of radar detection
Transmit Power	13 +/- 1.5 dBm
SNR	> 22 dB @ Pin~ -50 dBm
PSNR	> 37 dB @ Pin~ -50 dBm
Message Error	< 5 packet @ Pin~ -50 dBm
Video block error	< 10 @ Pin~ -50 dBm
Operating Range	10 ~15 meter Indoor. The transmission quality varies in the system board and surrounding environment.
Control connector	Control connector (1 port)
Temperature Range	0 ~ 40°C (Operating), -20~80°C (Storage)

2 Hardware involved

2.1 WMDA-118AN Module

The following figure shows the RX board, which has only one transmitting antenna (marked ANT3).

The board has UART port located on the top of the board (marked J1) for communication of the Baseband chipset (marked U2). The board has a UART port located on the Top of the board (marked J5) for communication of the MCU chipset (marked U28)

The board has a Power connector located on the top of the board (marked J3) for the 17 ~24V power supply.



Figure 1: WMDA-118AN board

2.2 Product Main Features

- WMDA-118AN Module :
 - HDMI A/V signal output via HDMI cable.
 - HDMI Receiver chipset (Si9134).
 - Supports 1080p/60 video resolution.
 - HDMI v1.3 supports.
 - Supports DFS.
 - Amimon's 2ND generation 1080P chipsets. (AMN2220, AMN3120)
 - RF Antenna use printed pattern.
 - Supports 5GHz MIMO compatibility (World band 4.9GHz - 5.9GHz)
 - Supports 20MHz channel bandwidth for wireless link setup
 - Supports 40MHz channel bandwidth for AV data transmit
 - Supports one downlink direct-conversion transmitter.
 - Supports five uplink direct-conversions receiver
 - IR Receiver function is bypass mode support.
 - IR Receiver micro-controller chipset.
 - Multi Layer PCB (6-Layer)
 - 140 x 70 x 13.5 mm

2.3 Major Components

Receiver:

- ☒ AMN3210 RF IC Receiver. (U15)
- ☒ 40MHz 3225 SMD crystal. (Y1)
- ☒ AMN2220 Base Band IC Receiver. (U2)
- ☒ 64Mbit DDR-2 200MHz memory. (U3)
- ☒ M25P40 4Mbit Flash memory. (U4)
- ☒ STM32F105RB-T6 Application microcontroller. (U28)
- ☒ 25MHz 3225 SMD crystal. (Y2)
- ☒ S3S828B IR Receiver microcontroller. (U8)
- ☒ 8MHz 3225 SMD crystal (Y3)
- ☒ Si9134 HDMI Transmitter. (U23)
- ☒ HDMI female connector. (J4)
- ☒ Power, control and data connector. (J3)
- ☒ Microwave Coaxial Connector without Switch SWD Type (SW1)
- ☒ AL7230 2.4/5GHz 802.11a/b/g WLAN Power Amplifier (U33)
- ☒ 24V/20V/17V Power supply voltage.

2.4 Interfaces

A/V Interfaces	1 x HDMI v1.3 Output
	I ² C – Application microcontroller
Control I/F	SPI – Amimon baseband
	UART – IR Receiver microcontroller
Debug	UART
External Power	17 ~ 24V
Maintenance	For development phase - Firmware Update Header connector
Maintenance	For development phase - JTAG debugging Header connector
Maintenance	For development phase - IR Receiver microcontroller download Test Point

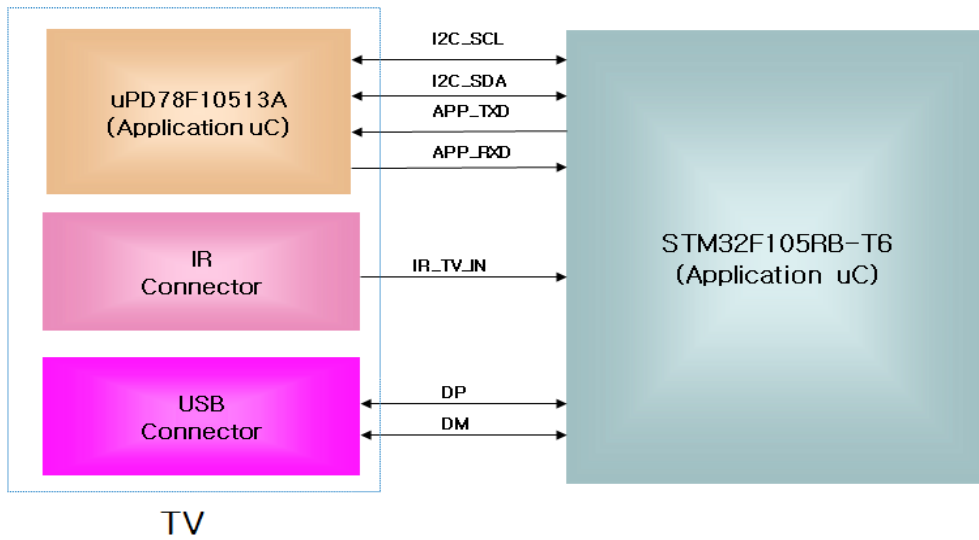


Figure 2: WMD-118AN Interface

2.5 Connector Pin-out (J3)

#	Signal	In/Out
1	VCC	24V/20V/17V
2	VCC	24V/20V/17V
3	VCC	24V/20V/17V
4	VCC	24V/20V/17V
5	VCC	24V/20V/17V
6	VCC	24V/20V/17V
7	DETECT	Connect to pull down register 3.3K (From Amimon to TV)
8	WIRELESS_INT	Connect to App uC (From Amimon to TV)
9	GND	Ground
10	RESET_IN	Connect to App uC (From TV to Amimon)
11	GND	Ground
12	I2C_SCL	Connect to App uC (Communications)
13	I2C_SDA	Connect to App uC (Communications)
14	GND	Ground
15	APP_RXD	Connect to Application micro-controller (Debug)
16	APP_TXD	Connect to Application micro-controller (Debug)
17	GND	Ground
18	IR_TV_IN	From TV Main board to IR Blaster micro-controller
19	DP	Connected to App micro-controller (F/W update)
20	DM	Connected to App micro-controller (F/W update)

2.6 Control signal



2.7 Power Supply

Input: 17 ~24V for Rx

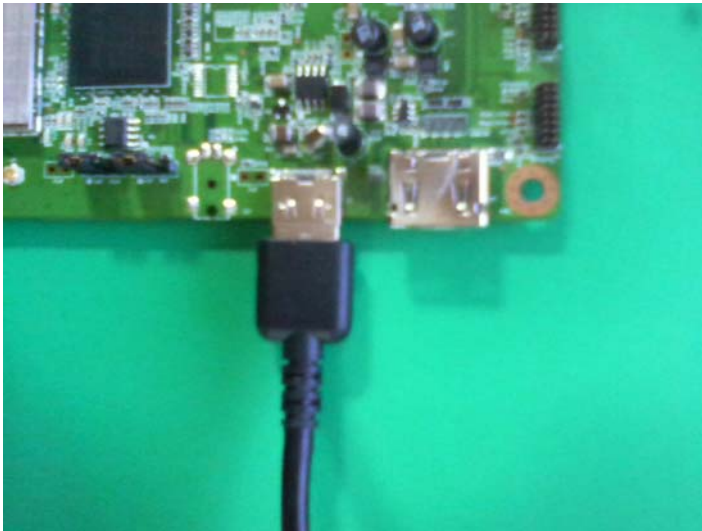


Figure 3: Control Cable connection Method

2.8 HDMI connector (J4)



Figure 4: HDMI Cable connection Method

2.9 Reset Switch

The WMDA-118AN module is operating reset function.

SW2: Reset

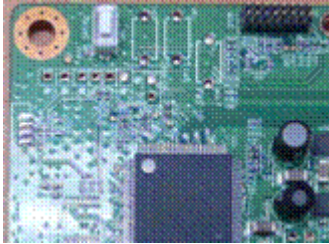


Figure 5: Reset switch location

2.10 PC computer with a USB port

The PC should be installed with:

1. Java UART application
2. Scripts that activate Gemtek TX /Gemtek RX for a transmitting mode via UART communication (supplied by Amimon).

2.11 Firmware Update Header (J5)

#	Signal	Direction
1	VCC	3.3v, From Amimon
2	VCC	3.3v, From Amimon
3	GND	
4	APP_RST	Reset
5	APP_TRST	JTAG functionality to Microcontroller
6	GND	
7	TDI	JTAG functionality to Microcontroller
8	APP_TXD	Connect to Microcontroller
9	GND	
10	APP_RXD	Connect to Microcontroller
11	APP_TMS	JTAG functionality to Microcontroller
12	APP_RTCK	
13	APP_TCK	JTAG functionality to Microcontroller
14	APP_TDO	JTAG functionality from Microcontroller
15	GND	Ground
16	GND	Ground

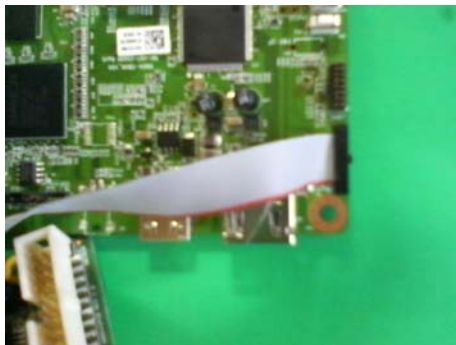
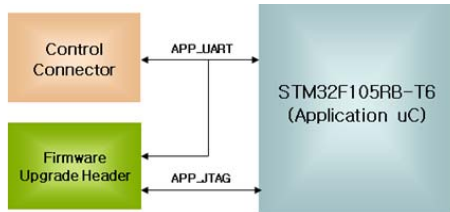


Figure 6: UART Cable connection Method

2.12 JTAG Debug Header (J1)

#	Signal	Direction
1	VCC	3.3v, From Amimon
2	VCC	3.3v, From Amimon
3	GND	Ground
4	N.C.	
5	TRST	JTAG functionality to Amimon
6	GND	Ground
7	TDI	JTAG functionality to Amimon
8	UART_TX	Connect to MAC uC (communications)
9	GND	Ground
10	UART_RX	Connect to MAC uC (communications)
11	TMS	JTAG functionality to Amimon
12	N.C.	
13	TCK	JTAG functionality to Amimon
14	TDO	JTAG functionality from Amimon
15	GND	Ground
16	GND	

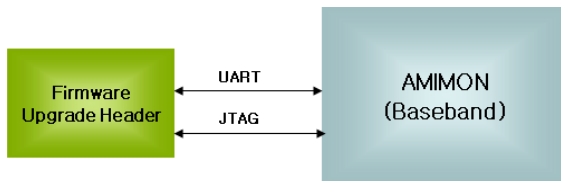


Figure 7: UART Cable connection Method