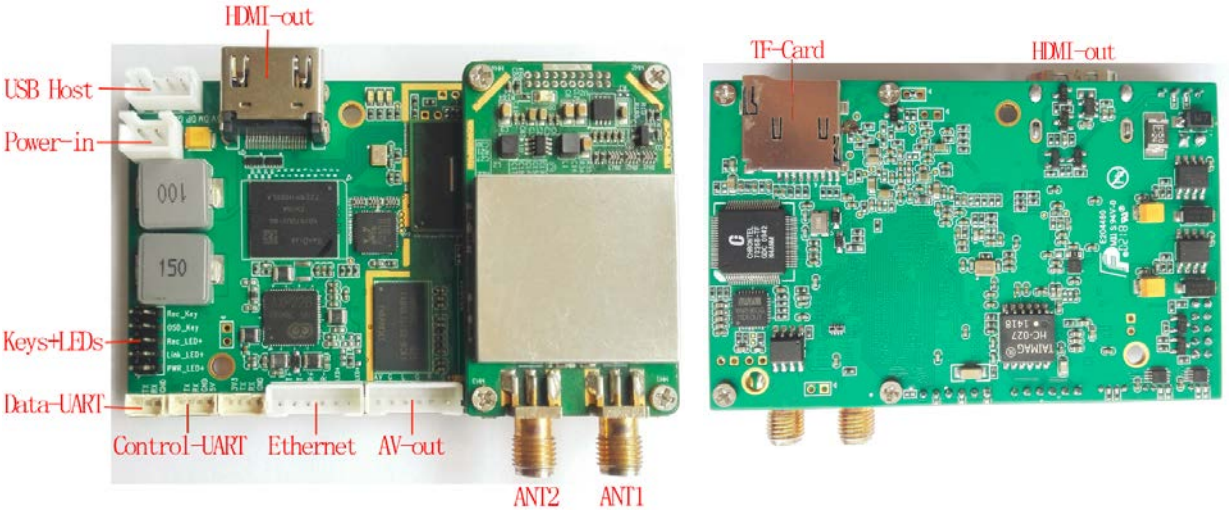
SHD4&DR2C COFDM Receiver Module

--160MHz~860MHz HD video COFDM receiver module with HDMI/AV/Ethernet/USB output



The SHD4&DR2C COFDM receiver module is a compact digital diversity receiver with integrated H.264 decoding, suitable for use in fluid and high-mobility applications. The receiver module accepts signals from two antennas to significantly enhance the demodulated performance and increase the operating range. The receiver module can find and lock automatically to the incoming transmission quickly according to the pre-set frequency and bandwidth. This receiver module features a range of comprehensive signal outputs including HD at 720p and 1080P, down-converted HD CVBS monitor video, and two analog audios is supported.

The receiver module also includes DVR record functionality with Micro SD card or USB disk. Additionally, the receiver module has a built-in RTSP sever that enables video streaming over Ethernet for remote software or hardware decoders. And the receiver module also enables video streaming over USB for remote Android device decoders like Smart phone or Android PAD. This allows multiple remote viewers to monitor the same video simultaneously. The receiver module also supports display characters string on the video display screen with the video together in OSD mode.

When paired with the Sihid COFDM transmitter module, the receiver module offers a comprehensive, rapidly-deployable video and audio solution that enables advanced situational awareness. It can play an essential role in delivering real-time live video from both ground and airborne mobile platforms.

- COFDM demodulation and H.264 video decoder;
- Full HD resolution, 1080P@60fps;
- Great security by AES decryption;
- DVR record with Micro SD card or USB disk;
- Built-in RTSP server enables video streaming over Ethernet;
- Enables video streaming over USB host for remote device;
- Supports display characters string on the video display screen in OSD mode;
- Stable signal transfer in NLOS and high speed moving;
- Adjustable working frequency, band width.

Specification:

IO

HD video output	HDMI type A connector
Composite video output	6PIN PH2.0mm connector
Audio output	Embedded HDMI and CVBS

RF input	Two SMA female 50Ω
Power in	2PIN PH2.54mm connector
USB Host	4PIN PH2.0mm connector
TTL UART data	3PIN PH1.25mm connector, 3.3V signal
TTL UART control	4PIN PH1.25mm connector, 3.3V signal
Ethernet	6PIN PH2.0mm connector
TF-Card	TF-Card slot
Keys&LEDs	2*5PIN PH2.0mm connector

Demodulation

Demodulation Formats	COFDM(DVB-T)
Carriers	2K
Bandwidth	Configurable from 1MHz to 8MHz, step by 1KHz
FEC	1/2, 2/3, 3/4, 5/6, 7/8
Guard interval	1/32, 1/16, 1/8, 1/4
Constellation	QPSK, 16QAM, 64QAM
Bitrates	0.5Mbps to 31.67Mbps

RF

Frequency Bands	160MHz~860MHz
Tuning Step size	1KHz
Sensitivity	-97±1dBm(BW=8MHz, QPSK, CR=2/3, GI=1/16) for one channel and add 3dBm for two channel

Video and Audio

Video output	HDMI and CVBS, Ethernet(RTSP protocol by default, option UDP), USB
Video formats	1080P or 720P 720*480 60I(NTSC), 720*576 50I(PAL)
Video Decoding	MPEG-4/H.264 AVC
Audio output	Embedded HDMI and AV audio
Audio Decoding	AAC
Decryption	AES256
Storage	USB disk or micro SD card

Monitoring and control

Comprehensive receiver setup with Sihid Config Panel or Windows PC or other device via control UART.

Temperature range

Full specification: 0° to +70°C Ambient
Storage: –40° to +80°C

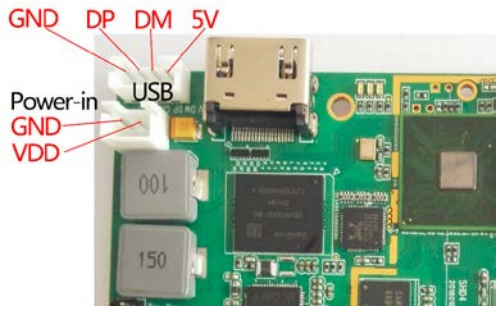
Physical Characteristics

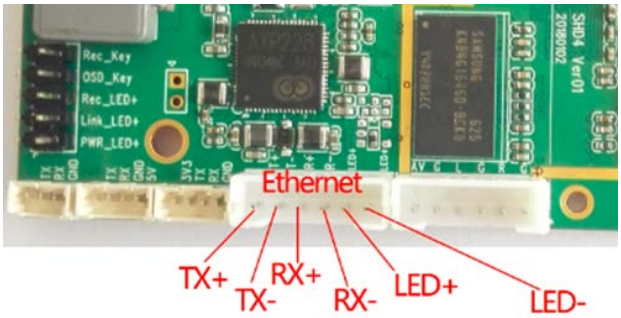
Board Dimensions: 80.4*50.8mm

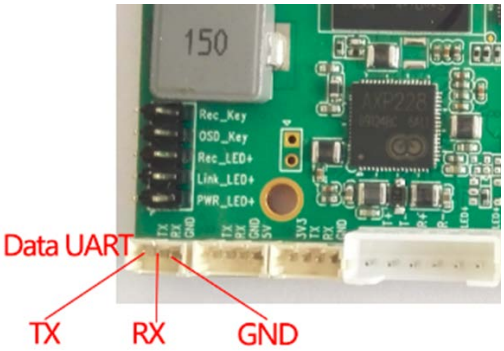
Power requirements

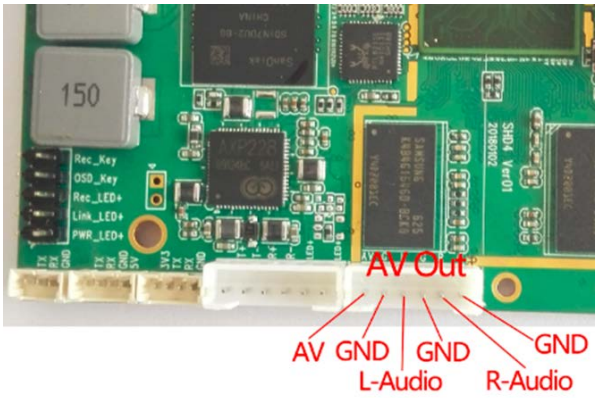
Input range: 9~24VDC
Power consumption: <300mA@12V

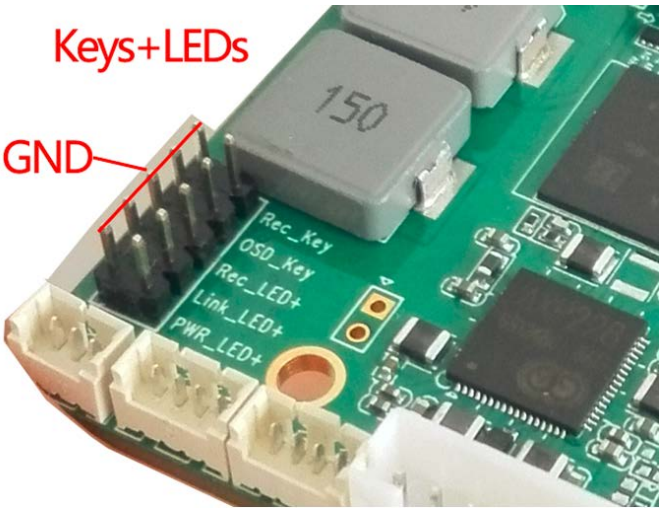
IO Signals

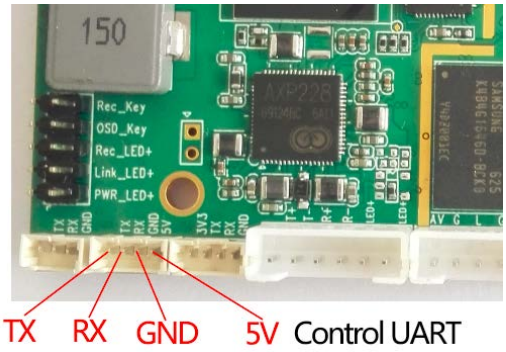












Keys + LEDs:

The receiver module has a 2*5PIN PH2.0mm connector which provides “keys + leds” signals. It is designed for customers who want to expand leds and keys to their case.

PWR led signal: this two pin can connect to a led for power indicator, constant light when device is normal powered.

Link led signal: this two pin can connect to a led for wireless link indicator, blinks when video stream received.

REC led signal: this two pin can connect to a led for record indicator, constant light when video recording.

REC key signal: this two pin can connect to a button for switch of video recording, short press to change it's status. The receiver will automatically check the storage device(micro SD card or USB disk) after power on and start to record video when the storage device is inserted. Just press it to stop or record again.

OSD key: this two pin can connect to a button for turning on/off the status of the OSD displaying, long press it to switch(more than 1s). The status will be kept after reboot. When the OSD status is on without any OSD data input from the data uart, the device will display information on the video screen as:

RF：338.0MHz BW：4.0MHz	; RF, working frequency; BW, bandwidth
QPSK CR：2/3 GI：1/16	; Constellation, FEC, Guard interval
AIR：3.90Mbps	; AIR, wireless transmitting bitrates
VBR：3.05Mbps AES OFF	; VBR, video bitrates; AES OFF, AES encryption turned off.
SIG1：27 SIG2：22	; SIG1, signal intensity of ant 1; SIG2, signal intensity of ant 2
ber1：0.14% ber2：100.00%	; ber1, bit error rate of ant 1; ber2, bit error rate of ant 2
REC OFF No Storage	; video recording status

Paired with COFDM transmitter:

The default normal features of SHD4&DR2C receiver module can be paired with all of Sihid H.264 transmitter module like SUE5&RCB, SUE5SA&RCB, SUE1&RCB, SUE2&RCB, SUE3&RCB. The HD video latency from its inputting of the transmitter to the HDMI screen displaying of the receiver is about 200~250ms.

The SHD4&DR2C module can also be paired with SUE5&RCB transmitter module(or SUE5SA&RCB module) for lowest video latency application when manufactured with specified firmware. The specified firmware enable proprietary H.264 video compression / decompression only used p-frames for lowest latency. The video latency from its inputting of the transmitter to the HDMI screen displaying of the receiver is about 50ms to 130ms.