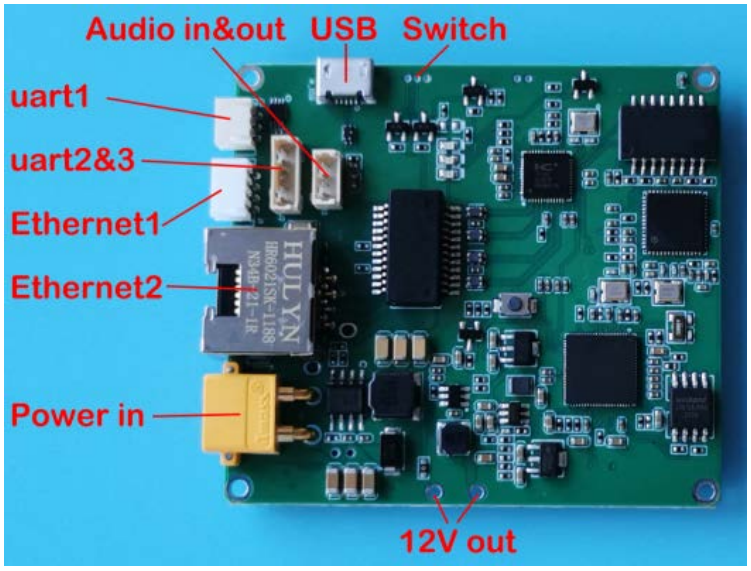
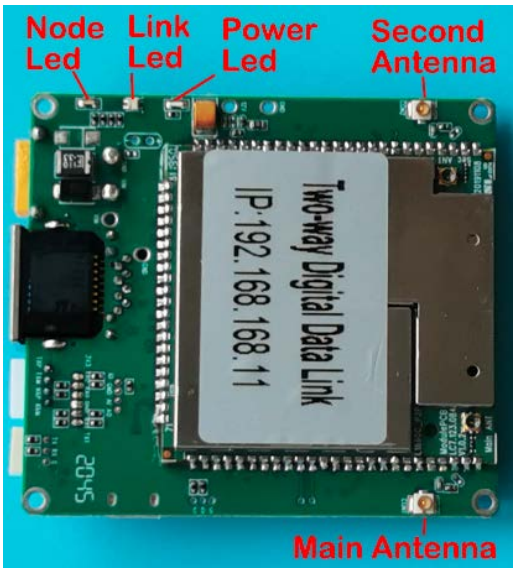
DLB Module

-- TDD OFDM full duplex wireless transceiver module for video and data Link
-- RF Power: 25±2dBm
-- Working Frequency: 806~826HMz, 1428~1448MHz, 2402~2482MHz
-- 2 Ethernet and 3 TTL uart data link
-- Audio input and output with codec
-- Transmit distance: 500~2000 meter(ground-to-ground), 5~17km(UAV-to-ground)





Sihid DLB module was designed for video and data wireless transmission with two way wireless data link. This OFDM radio module works at 800MHz, 1.4GHz and 2.4GHz bands, with frequency hopping technology (FHSS) to make sure better stability signal communication.

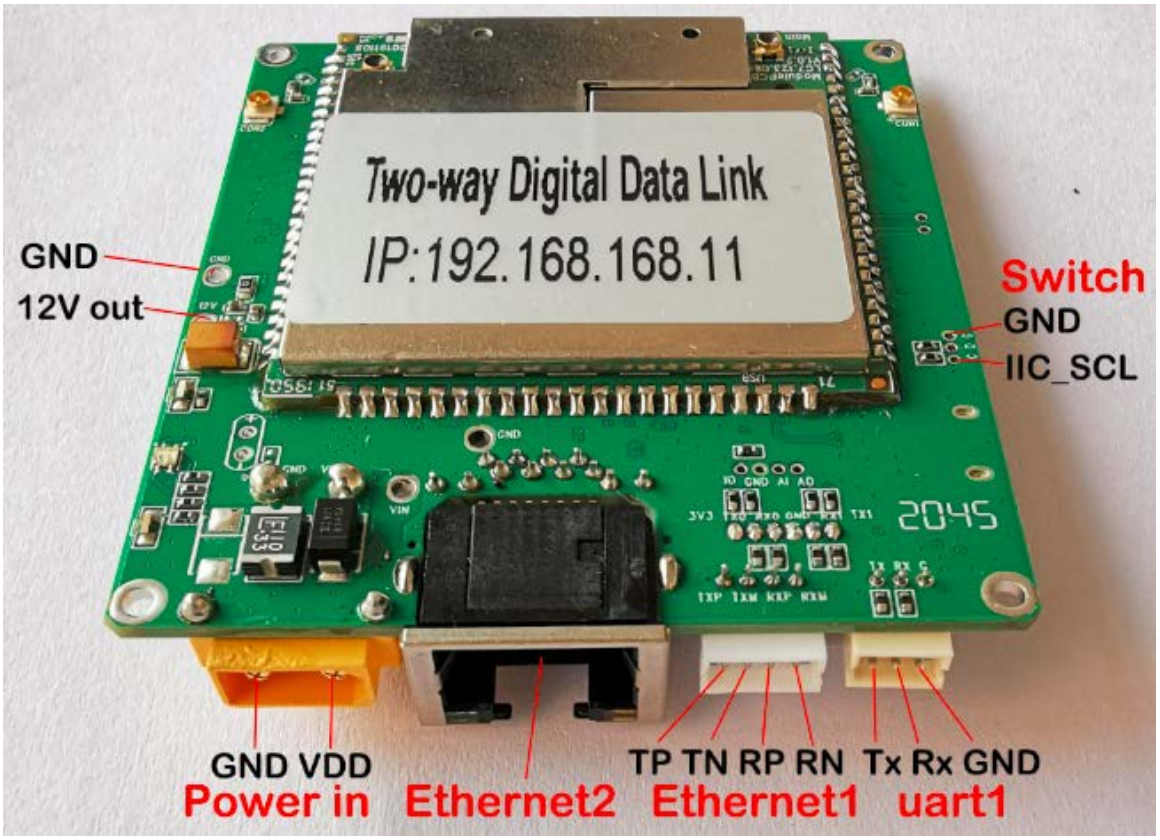
Features:

- TDD OFDM modulation
- Supports 3 bands (806~826HMz/1428~1448MHz/2402~2482MHz)
- Supports FHSS inside each band
- 1.4/3/5/10/20MHz bandwidths
- Max 30Mbps@20MHz throughput
- RF transmission power: 25±2 dBm
- Constellation: QPSK, 16QAM, 64QAM, self-adaption
- Sensitivity: -106dBm(2.4GHz 1Mbps), -108dBm(1.4GHz 1Mbps), -108dBm(800MHz 1Mbps)
- Supports IP data transmission(2 Ethernet port)
- Supports serial data transmission(3 channel, TTL)
- Supports audio input and output with codec on board
- Up to 17km LOS (UAV-to-ground) and 2km LOS(ground-to-ground)
- Web UI or serial uart for management
- AES128 encryption
- Uplink and downlink stream control
- Networking mode: One-to-one, one-to-many, many-to-one, mesh(specify)
- Power consumption: <4.5W

- Dimensions: 58*64*13mm
- Weight:32g
- Working Temp. -20℃ ~ +65℃
- Storage Temp. -40℃ ~ +80℃

I/O signal

Power in	XT30PW-M connector, DC in:7~30V
Ethernet1	4PIN ZH1.5mm connector
Ethernet2	RJ45 connector
Data uart1	3PIN ZH1.5mm connector, TTL 3.3V
Data uart2 and uart3	6PIN PH1.25mm connector, uart3 works as control uart and data uart, TTL 3.3V
Audio input and output	4PIN PH1.25mm connector
USB	Micro USB connector, for software upgrading
Switch	Tx/Rx control signal for outside power amplifier
Main-Antenna	Tx/Rx Antenna port, IPEX
Second-Antenna	Rx Antenna port, IPEX
12V out	On-board 12V out(<150mA), for cool fan power supply
Power Led	Red, light on normal powered
Node Led	Blue, light on when DLB module works as central node; Blink when DLB module works as access node
Link Led	Light off – indicate that the node is not linked to the wireless network; Red light – indicate that the node is linked, but wireless signal is weak; Orange light – indicate that the node is linked, wireless signal is middle; Green light – indicate that the node is linked, wireless signal is strong.

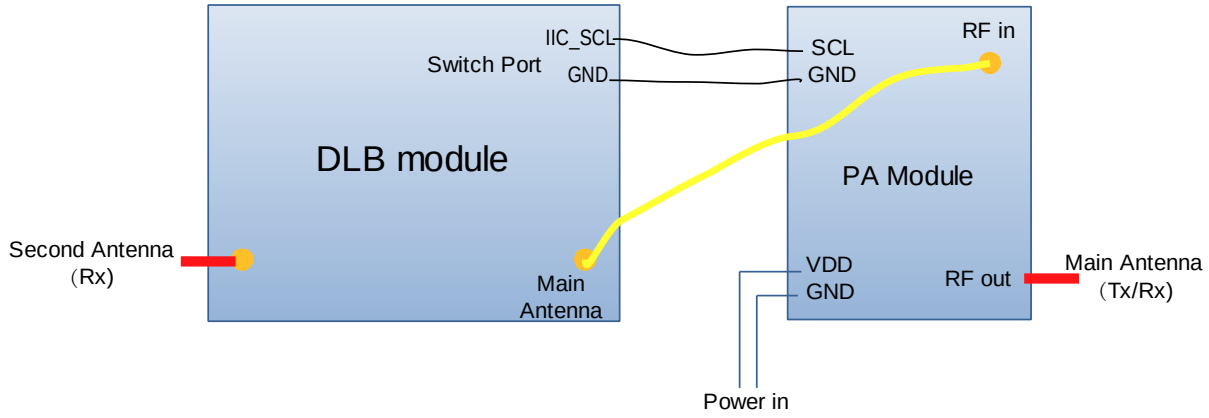


Ethernet1 and Ethernet2

Ethernet1 and Ethernet2 is bridged connection on board, so the IP address of the two Ethernet ports are the same. The 4PIN signals of Ethernet1 are showed on the up photo. Ehternet2 is a standard RJ45 port.

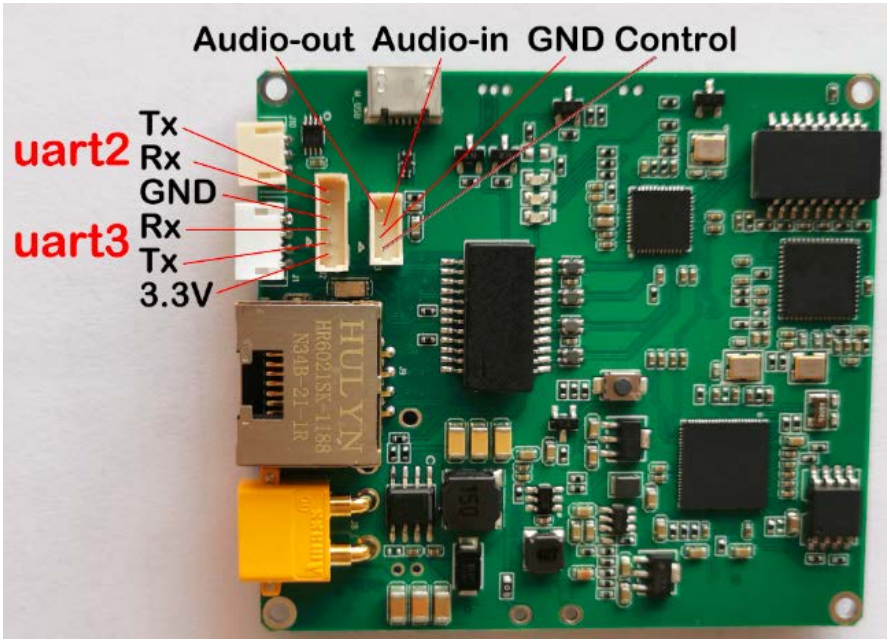
Switch Port

This port is Tx/Rx control signal for outside power amplifier. The maximum RF transmission power of DLB module is 25±2 dBm, Sihid also provides power amplifier to increase the RF Power to 2W/5W/10W. Below diagram shows how to add power amplifier outside the DLB module.



Uart2 and uart3

Both of the two uarts are 3.3V TTL uart, the board connector also has a 3.3V VDD signal and it can be used for drive external circuit to change the uart to RS232/422/485 uart. Uart2 is just for data transmission, uart3 works as data uart and control uart. DLB module can be managed with Web UI or AT command via uart3.



Audio port

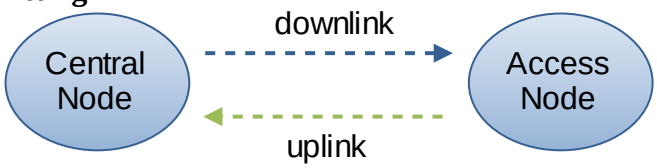
This port is for analog audio input and output with on-board audio codec supporting. Customers can use this audio port for two-way wireless audio communication application.

PIN	Signal	Description
Audio in	Line in by default(Specify Mic in)	The audio will send to the target wireless DLB node.
Audio out	Line out, drive earphone	When the node received audio data from remote wireless DLB node, the audio will be played out on this PIN.
GND	GND	GND
Control	Software defined	On/off switch control of audio input

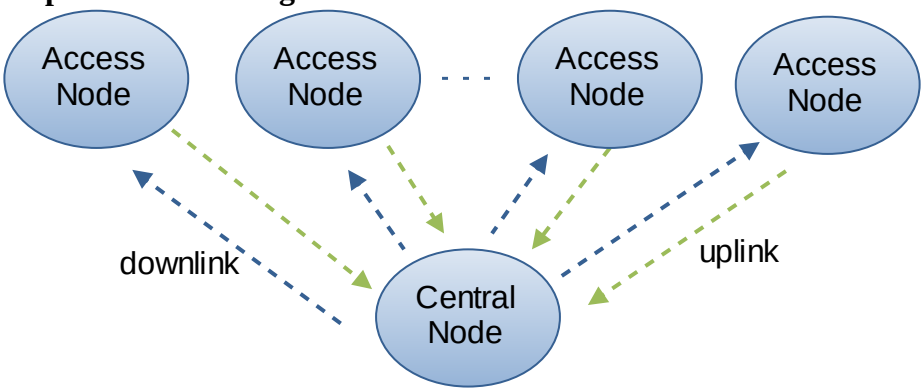
Wireless networking with DLB module

DLB module supports two operating modes: Access Node or Central Node. It can be managed through Web UI or AT command via uart3. DLB module supports features of maximum 16 Access Nodes connected to a Central Node. All of the Nodes are in a same wireless LAN and share the whole transmission bandwidth (maximum 30Mbps@20MHz throughput). Data from Central Node to Access Node, we call downlink, and data from Access Node to Central Node, we call uplink. Uplink and downlink stream ratio can be controlled through web UI or AT command. When using DLB module for Point-to-Point transmitting, uplink and downlink share the whole transmission bandwidth (maximum 30Mbps@20MHz throughput) too. DLB module supports networking mode: Point -to-Point, Point-to-Multipoint, Relay, and Mesh (specify mesh version when order).

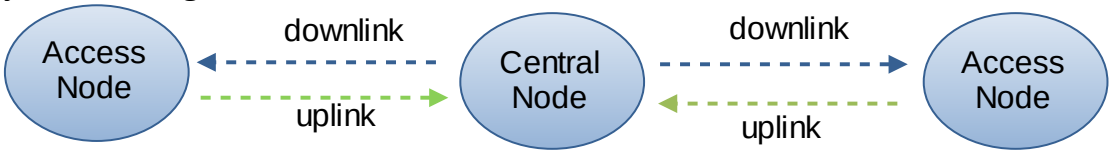
Point-to-Point transmitting



Point-to-Multipoint transmitting



Relay transmitting



Mesh transmitting (Specify)