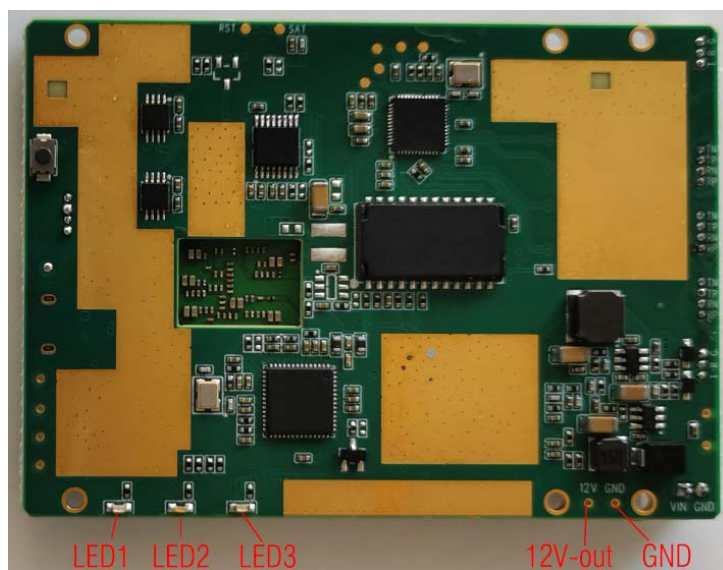


## DLC Module

- TDD OFDM full duplex wireless transceiver module for video and data Link
- RF Power:  $24 \pm 1$ dBm \*2 channel
- Working Frequency: 566~678MHz, 1420~1530MHz
- 3 Ethernet and 1 RS232 uart data link, control uart(TTL)
- Transmit distance: 500~2000 meter(ground-to-ground), 5~22km(UAV-to-ground)



Sihid DLC module was designed for video and data wireless transmission with two way wireless data link. This OFDM radio module works at 600MHz and 1.4GHz bands, with frequency hopping technology (FHSS) to make sure better stability signal communication.

Features:

- TDD OFDM modulation
- Supports 2 bands (566~678MHz/1420~1530MHz)
- Supports FHSS inside each band

- 1.4/3/5/10/20/40MHz bandwidths
- Max 100Mbps throughput
- RF transmission power: 24 ± 1 dBm \*2 channel
- Constellation: QPSK, 16QAM, 64QAM, self-adaption
- Sensitivity: -95dBm(20MHz bandwidth)
- Supports IP data transmission(3 Ethernet port)
- Supports serial data transmission(1 channel, RS232)
- Up to 22km LOS (UAV-to-ground) and 2km LOS(ground-to-ground)
- Web UI and control uart for management
- AES128 encryption
- Uplink and downlink stream control
- Networking mode: One-to-one, one-to-many, many-to-one, relay, mesh(specify)
- Power consumption: <7W
- Dimensions: 80\*57\*9.1mm
- Weight: 41g
- Working Temp. -20°C ~ +65°C
- Storage Temp. -40°C ~ +80°C

Power in	2PIN PH2.0mmConnector, DC in:9~30V
Ethernet-1	4PIN PH1.25mm Connector
Ethernet-2	4PIN PH1.25mm Connector
Ethernet-3	4PIN PH1.25mm Connector
Data UART	3PIN PH1.25mm Connector, RS232(or TTL 3.3V)
Control UART	3PIN PH1.25mm Connector, TTL 3.3V
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	Tx/Rx Antenna port, IPEX
12V out	On-board 12V out(<200mA), for cool fan power supply

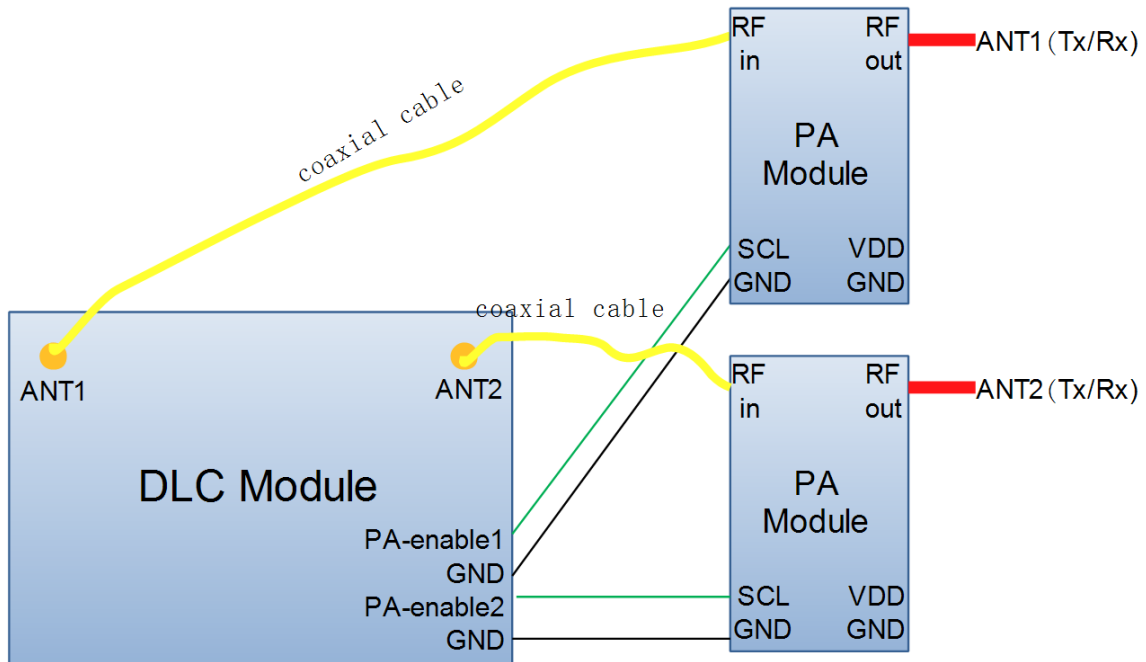
### Ethernet1, Ethernet2 and Ethernet3

The three Ethernet ports is bridged connection on board, so the IP address of the three Ethernet ports are the same. The 4PIN signals of Ethernet1 are showed on the below photo.



### Switch Port

This port is Tx/Rx control signal for outside power amplifier. The maximum RF transmission power of DLC module is  $24 \pm 1$  dBm \* 2channel, Sihid also provides power amplifier to increase the RF Power to 2W/5W/10W. Below diagram shows how to add power amplifier outside of the DLC module.



Signal	Electrical level	I/O	Description	mark
PA-enable1	1.8V	O	High electrical level: data transmitting, change to high electrical level at 3.19us before transmitting and to low electrical level at 0.26us after transmitting finished.	High-Tx Low-Rx
PA-enable2	1.8V	O		

### Data uart

The data uart is RS232 as default. It can be changed to TTL 3.3V uart before ship out. The baud rate of data uart can be set as 115200, 57600, 38400, 19200, 9600, 4800, 2400, 1200.

Data communication via data uart:



### Control UART and USB port

Only one of these two ports is valid at the same time. Control uart is valid by default shipment. Please contact with Sihid if you need to use USB uart. DLC module can be managed with Web UI or AT command via control uart.

### LEDs

LED1: Power LED, red, light on normal powered.

LED2: blue, LED3: green, LED2 and LED3 indicate the wireless working status as described in below table.

Central node	Blue LED2 light on all the time and green LED3 is not light
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Access node	Green LED3 light on all the time when the access node is connected with the central node.
	The blue LED2 indicate the access node linking signal status with the central node. When the wireless linking signal is strong, blue LED2 blinks every 30 seconds; When the wireless linking signal is middle, blue LED2 blinks every 6 seconds; When the wireless linking signal is weak, blue LED2 blinks every 1 second.

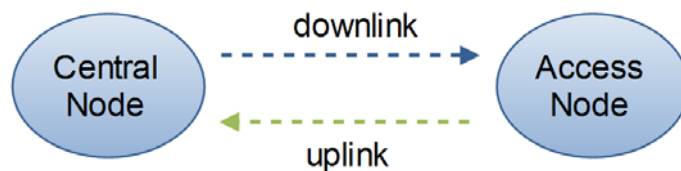
Sometimes customers may need to assemble the indicating LEDs on their housing case panel, so the DLC board also provide soldering hole for the three LEDs signal. The LEDs signal is described in below table.

LED	Description	Representation soldering hole
LED1	Power LED	LED1-GND and LEDs-VCC
LED2	Wireless indicating LED	LED2-GND and LEDs-VCC
LED3		LED3-GND and LEDs-VCC

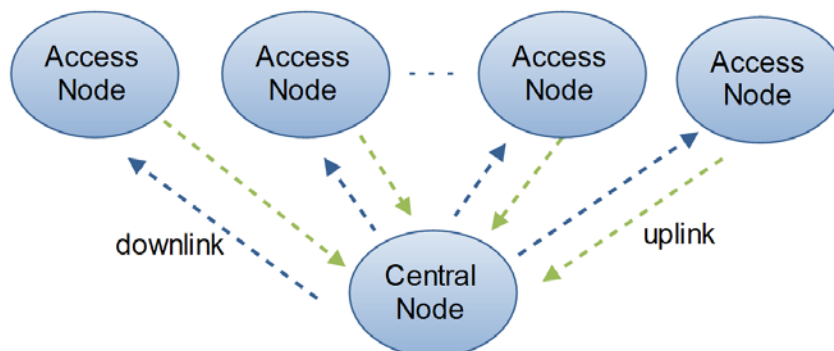
### Wireless networking with DLC module

DLC module supports two operating modes: Access Node or Central Node. It can be managed through Web UI or AT command via control uart. DLC module supports features of maximum 63 Access Nodes connected to a Central Node. All of the Nodes are in a same wireless LAN and share the whole transmission bandwidth (maximum 100Mbps 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 DLC module for Point-to-Point transmitting, uplink and downlink share the whole transmission bandwidth (maximum 100Mbps throughput) too. DLC module supports networking mode: Point -to-Point, Point-to-Multipoint, Relay, and Mesh (specify mesh version when order).

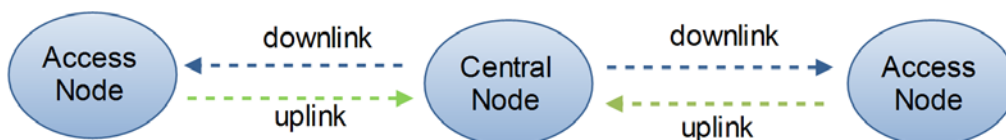
#### Point-to-Point transmitting



#### Point-to-Multipoint transmitting



#### Relay transmitting



**Mesh transmitting (Specify)**

