



Shenzhen Sinosun Technology Co.,Ltd.

Technical Specification

File Number: SINOSUN-DDL2×2/10×2 /20×2

Product Name: Vehicle/Shipboard Radio

Compilation/Date:

Review/Date:

Approval/Date:

Amendment No.	Modify The Content	Modified Date

1. Vehicle/Shipboard Radio

The new DDL series wireless digital data link is a low-cost long-distance video&data transmission product with small size, light weight, 2X2 MIMO, complete functions and rich frequency bands. DDL series based on SDR software defined radio platform with 2X2 MIMO, It adopts Beamforming, Maximal Ratio Combining (MRC), Maximal Likelihood(ML) algorithm, low density parity check (LDPC) coding, intelligent frequency selection and autonomous frequency hopping technology to achieve strong radio frequency performance and strong anti-jamming.

DDL series data link radio provides ultra-long distance, low latency, bidirectional multi-channel network video&data&voice integrated wireless transmission. The world's leading code-modulated physical layer waveform technology and flexible anti-jamming and secure encryption design for the unmanned field are applied to reliable remote data links for UAVs, helicopters, robots, unmanned ships, unmanned vehicles and special vehicles.

The application system is mainly composed of the airborne radio with the airborne camera, and the ground radio with the ground computer, as well as the necessary accessories (including power supply, antenna feed system, connection lines and connectors, etc.).

The system can simultaneously transmit three IP/HDMI/SDI/CVBS HD video and multiple two-way transparent data (such as flight control/pod, Beidou /GPS, voice, etc.). AES encryption ensures transmission security.

Radio the transmission power of the station can reach up to 40W, providing a stable and reliable communication link.

Features

- 400M/600M/800M/900M/1.4G/2.3G/2.4G/5.8GHz, transmitting power can be change, support NLOS high speed mobile transmission, open transmission distance of more than 50 km.
- 70Mbps data stream, adaptive dynamic bit allocation technique. Support one way 4K, multi way 1080P or 720P HD video.
- 3 serial port and 2 video interface running at the same time, flight controller, voice, GPS and other data can transmit with video.
- Support PtoP, PtoMP, MPtoMP technique,centerless of no-master/slave.Support VLAN.
- Local diagnostic interface, telnet, network management. Local and remote wireless firmware update through FTP.
- Low power consumption. Tiny volume, lightweight structure, body building for UAV.



2Watts×2



10Watts×2/20Watts×2

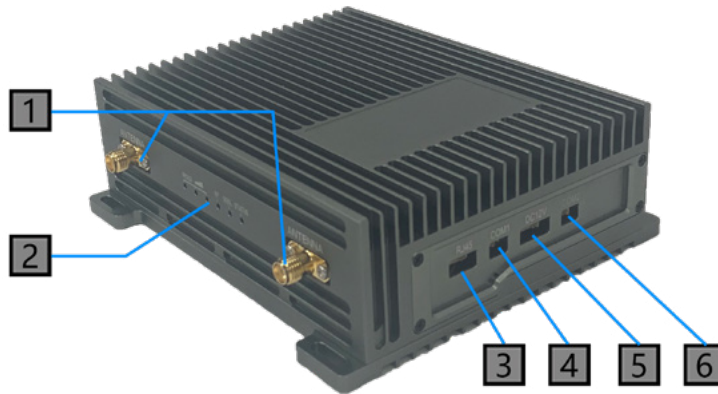
2. Vehicle/Shipboard Radio Specifications

Wireless Specifications	
Frequency Range	320-450/450-550/550-700MHz,1000-1300/1300-1500MHz, 1.8-2.2/2.2-2.5GHz,4.4-5.0/5.0-6.0GHz,70M-6GHz Customized
Channel Bandwidth	1.25/2.5/5/10MHz Adjustable
Modulation Mode	COFDM, DSSS-CCK/BPSK/QPSK/16QAM/64QAM (Adaptive)
Throughput	70Mbps@10MHz/25Mbps@5MHz/10Mbps@2.5MHz/ 4Mbps@1.25MHz
Sensitivity	-102dBm@5MHz
Transmission Distance (line-of-sight)	over 100 km (2Watts x 2), over 150 km (10Watts x 2), over 200 km (20Watts x 2)
Transmission Power	2Watts x2 10Watts x2/20Watts x2
Networking Capabilities	
Communication Mode	Point-to-point、 point-to-multipoint and multipoint-to-multipoint
Network Topology	Centerless of no-master/slave to MPtoMP
Wireless Protocol	HTDMA
Network Protocol	IPv6,QoS,DNS,HTTPS,IP,ICMP,NTP,DHCP,VLAN
Encryption	DES56/AES128/AES256
Anti-jamming	Intelligent frequency selection/Autonomous frequency hopping
Mobility	Support movement speed greater than 200 km/h
Transmission Delay	Less than 10 ms

System Parameters	
Interface	Network port (IP/WiFi), Serial port (232/485/422/TTL、 Sbus/USB/ Bluetooth)、 Audio port (MIC-SP-PTT/VoIP)、 4G-5G Public Network Routing/4G LTE/Satellite/Fibe
Video Interface	IP、 HDMI/SDI、 CVBS
Local/Remote Management	PC terminal Web browsing, Mobile APP: topology, node and link status, distance monitoring, whole network parameter configuration, software upgrade and other functions
System Upgrade	Support one-click upgrade, remote upgrade
Positioning Function	GPS/BDS
Power Supply	12-36VDC,2Watts×2 14.8-36VDC,10Watts×2 18-36VDC,20Watts×2
Power Consumption	Operation 1-2A/Standby 0.5-0.7A@12V,2Watts×2 Operation 3-6A/Standby 0.7-0.9A@16.8V,10Watts×2 Operation 6-10A/Standby 0.7-0.9A@20V,20Watts×2
Physical Properties	
Operating Temperature	-40°C ~ 80°C
Protection Level	IP65、 IP66/IP67(Customized)
Size/Weight	11.9x10.6x3.9cm/518g(2Watts×2) 18.3x15.4x6.3cm/1.56kg(10Watts×2/20Watts×2)

3. Vehicle/Shipboard Radio Hardware Interfaces

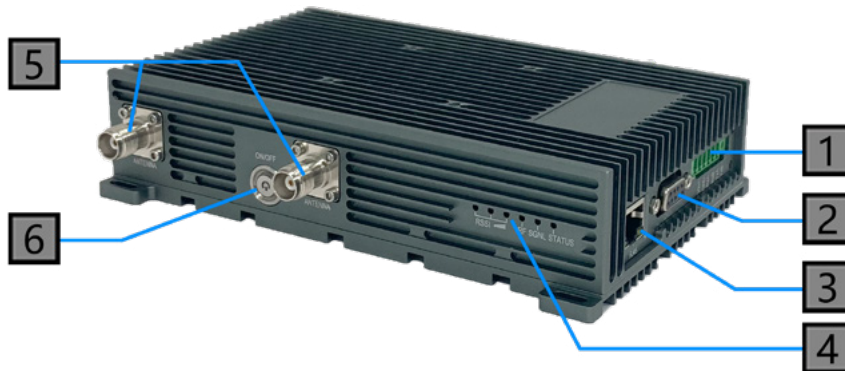
3.1 Vehicle Radio (1Watts x2/2Watts x2)



- 1** RF ANTENNA(SMA Female)
- 2** Link Status Indicator
- 3** RJ45

- 4** COM1
- 5** DC12V
- 6** COM2

3.2 Vehicle Radio (10Watts x2/20Watts x2)

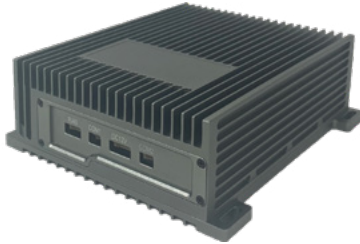


- 1** Power/RS485/RS422
- 2** RS232
- 3** Ethernet

- 4** Link Status Indicator
- 5** RF Antenna [TNC Female]
- 6** Power Switch

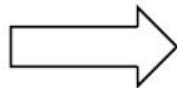
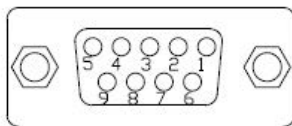
4. Vehicle/Shipboard Radio Connection Port Pin Definition

4.1 Vehicle Radio (1Watts x2/2Watts x2)

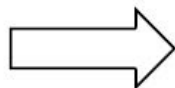
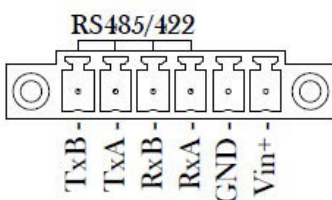


Communication Port Pin Definition	
Port	Definition
RJ45	T-
	T+
	GND
	R-
COM1	R+
	TX
	G
DC12V	RX
	GND
	GND
	GND
	VCC
	VCC
COM2	VCC
	G
	TX
	RX

4.2 Vehicle Radio (10Watts x2/20Watts x2)



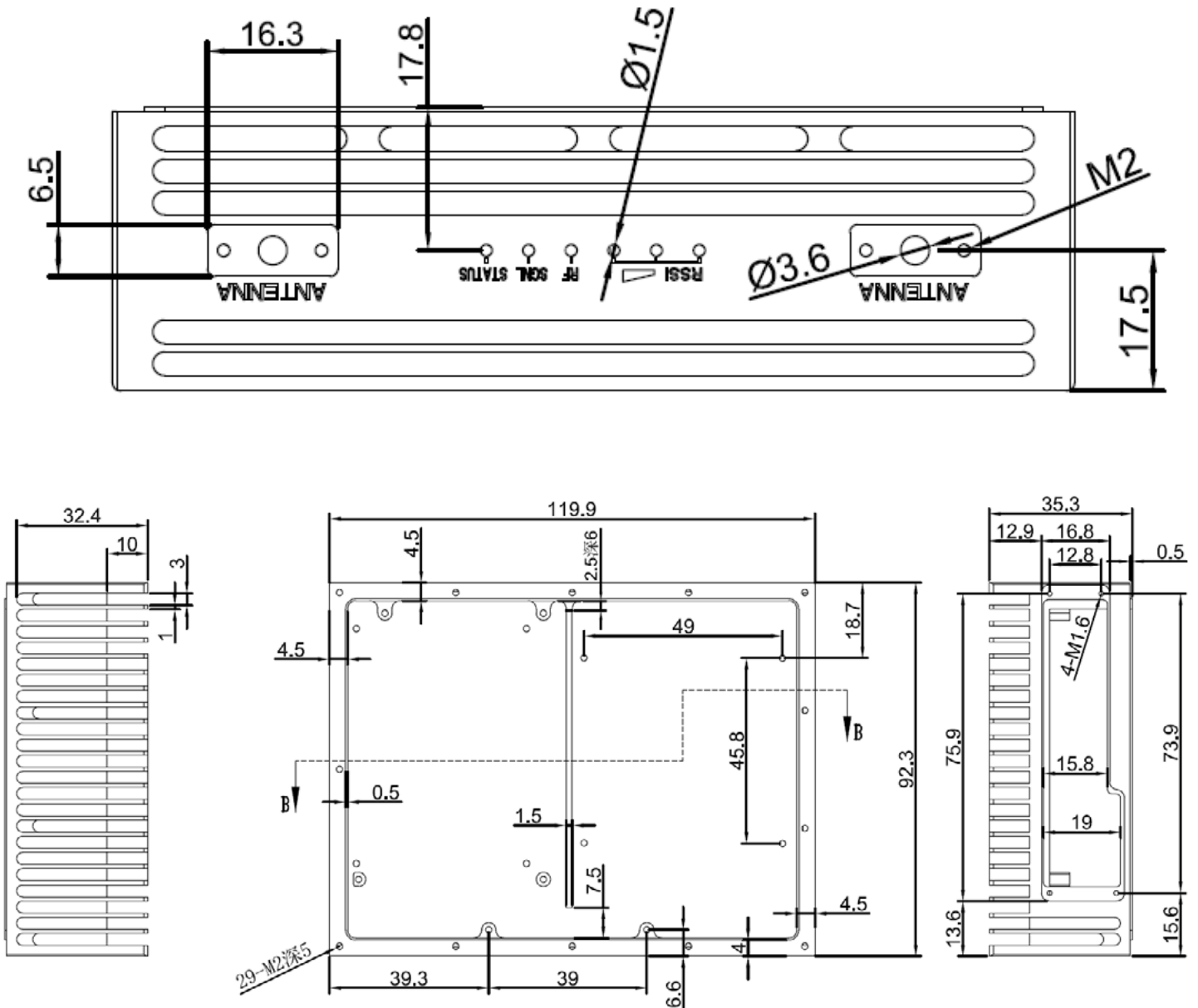
RS232 Port	Name	Input or Output
1	DCD	O
2	RXD	O
3	TXD	I
4	DTR	I
5	SG	
6	DSR	O
7	RTS	I
8	CTS	O
9	RING	O



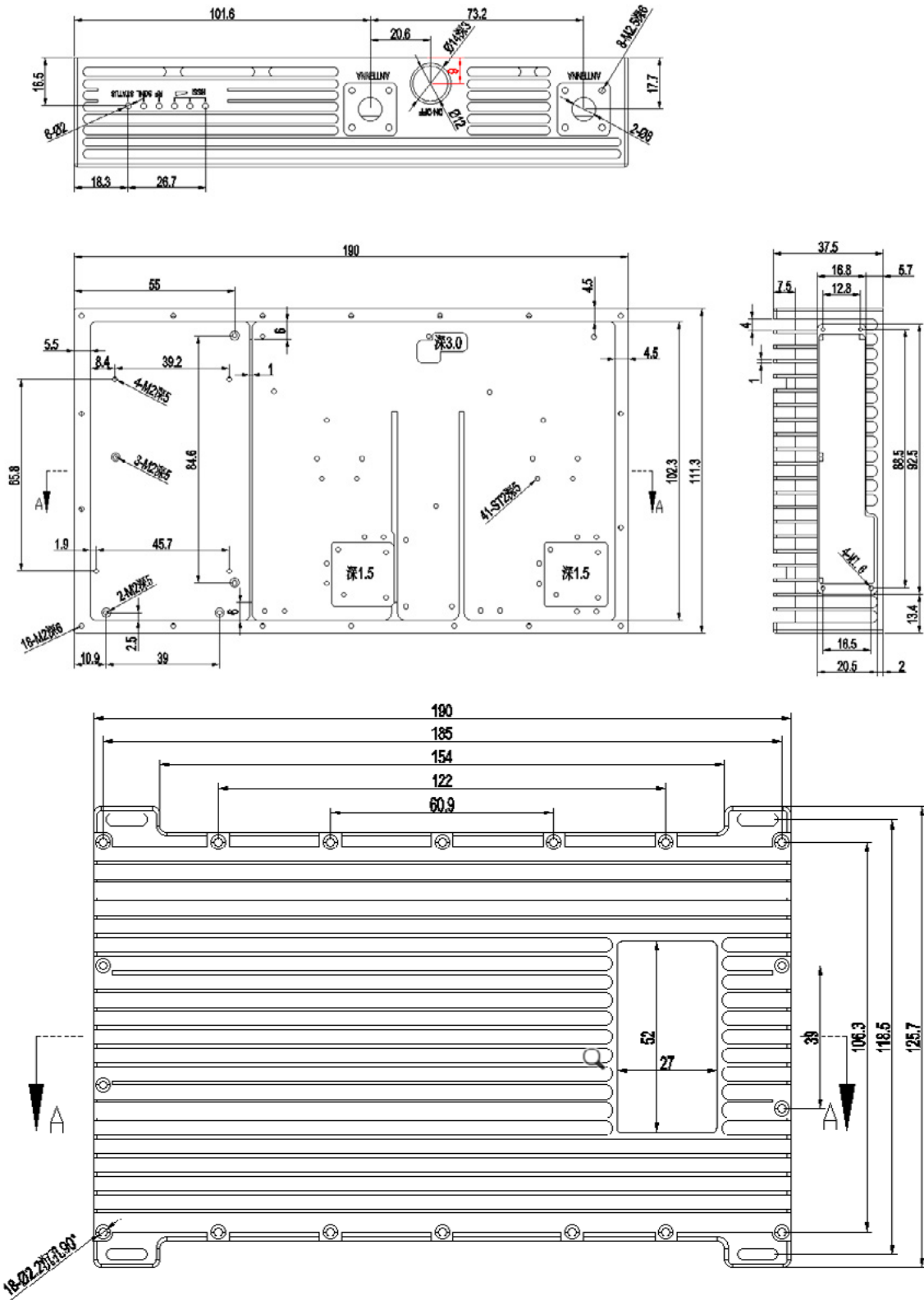
Green Conn. Pin No.	Name	Input or Output
1	TxB(D+)	O
2	TxA(D-)	O
3	RxB(R+)	I
4	RxA(R-)	I
5	Vin-	
6	Vin+	O

5. Vehicle/Shipboard Radio Dimension Figure

5.1 Vehicle Radio (1Watts x2/2Watts x2)

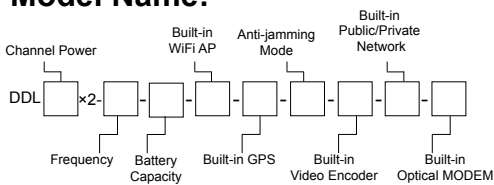


5.2 Vehicle Radio (10Watts x2/20Watts x2)



6. Vehicle/Shipboard Radio Model Name

Model Name:



Channel Power (W)	Frequency (MHz)	Battery Capacity (AH)	Built-in WiFi AP	Built-in GPS	Anti-jamming Mode	Built-in Video Encoder	Built-in Public/Private Network	Built-in Optical MODEM
0.5,1	600,U	0(N)	0(N)	0(N)	0(Single Frequency)	0(N)	0(N)	0(N)
2,4	1400,L	6.8,10.2	1(Y)	1(Y)	1(Intelligent Channel Selection)	HDMI	4G/5G	1(Y)
10	2300,S	9.6,28.8			2(Autonomous Frequency Hopping)	SDI/AV	4G LTE CPE	
20	4500,C							

DDL2x2-1400-10-0-0-1-0-0-0, Express: 2Wx2, L Band, Maximum Channel Bandwidth 10MHz, with intelligent frequency selection Vehicle Radio.