CUAV

2023

PRODUCT BROCHURE

CUAV Tech Inc.,Ltd
www.cuav.net

Company Profile

CUAV Tech Inc., Ltd. is a national high-tech enterprise oriented by drone innovation technology, integrating R&D, production and sales. Long-standing official partnership with members of the PX4, Ardupilot and Dronecode open source communities.

CUAV Tech Inc., Ltd. has a UAV open source community well-known product "CUAV", wholly-owned subsidiary Raefly(Guangzhou) Technology Co., Ltd. CUAV has a complete R & D, production, sales integration process system, set up its own R & D center, test center, SMT production line, etc. Most of the products have obtained CE and FCC certification, and the production line has passed the ISO9001-2015 international quality system certification.

Primary Business

CUAVCloud Network System	Flight Controller	Multi-Copter UAV
UAV Telemetry	Power Module	VTOL UAV
GNSS Module	Airspeed Sensor	

Cooperation Partner

Harbin Institute of Technology

BEIHANG University

China Jiliang University

Nanjing University of Aeronautics and Astronautics

飞图 FLYTOUAV

容祺智能 RONGQE INTELLIGENCE

Auterion

ARDUPILOT

SOUTH 南方测绘

MMC 科比特航空

CHCNAV 华测导航

中海达 HI-TARGET

PX4 autopilot

ZIYAN

美团

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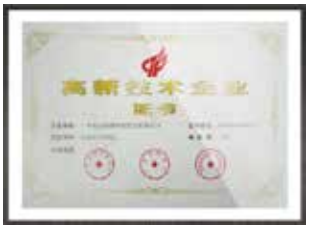
Company Event

Certification



Letter of Patent












CONTENTS

CUAVCloud System

Flight Controller

GNSS Module

RTK&PPK GNSS Module

UAV Telemetry

Power Module

Remote Controller

Airspeed Sensor

Other

CUAVCloud

UAV 4G/5G Network System

- 4G/5G communications
- 1080P HD video
- 250ms low latency
- Remote control
- Team collaboration, data sharing
- Support PX4 Ardupilot flight controller

Introduction

CUAVCloud UAV 4G/5G Networked system is a set of UAV 4G/5G real-time video and data transmission solution. On this basis, we have added video sharing, authority management and more functions, which is very suitable for inspection scenarios. In addition, you can install CUAVCloud on your own servers to ensure data security.

System Composition

Client

Windows: Feigong Transmission

Android: CUAV GS

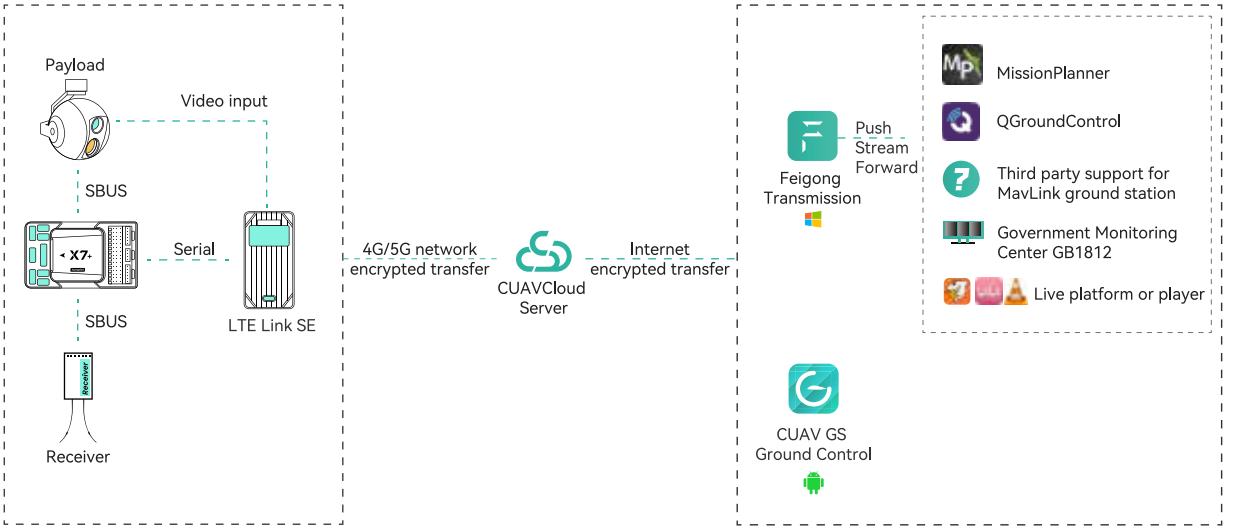
Hardware

Air Link

LTE Link SE /LTE Link2

LBA 3 UAV communication micro base station

How it works



Application Scenarios

CUAVCloud Privatization Deployment

Normal Version

UAV install LTE Link　　CUAVCloud Server　　CUAVCloud Client

Private Cloud Version

UAV install LTE Link　　Deploy the CUAVCloud system program to the user's server　　Customized Client

CUAVCloud Pricing

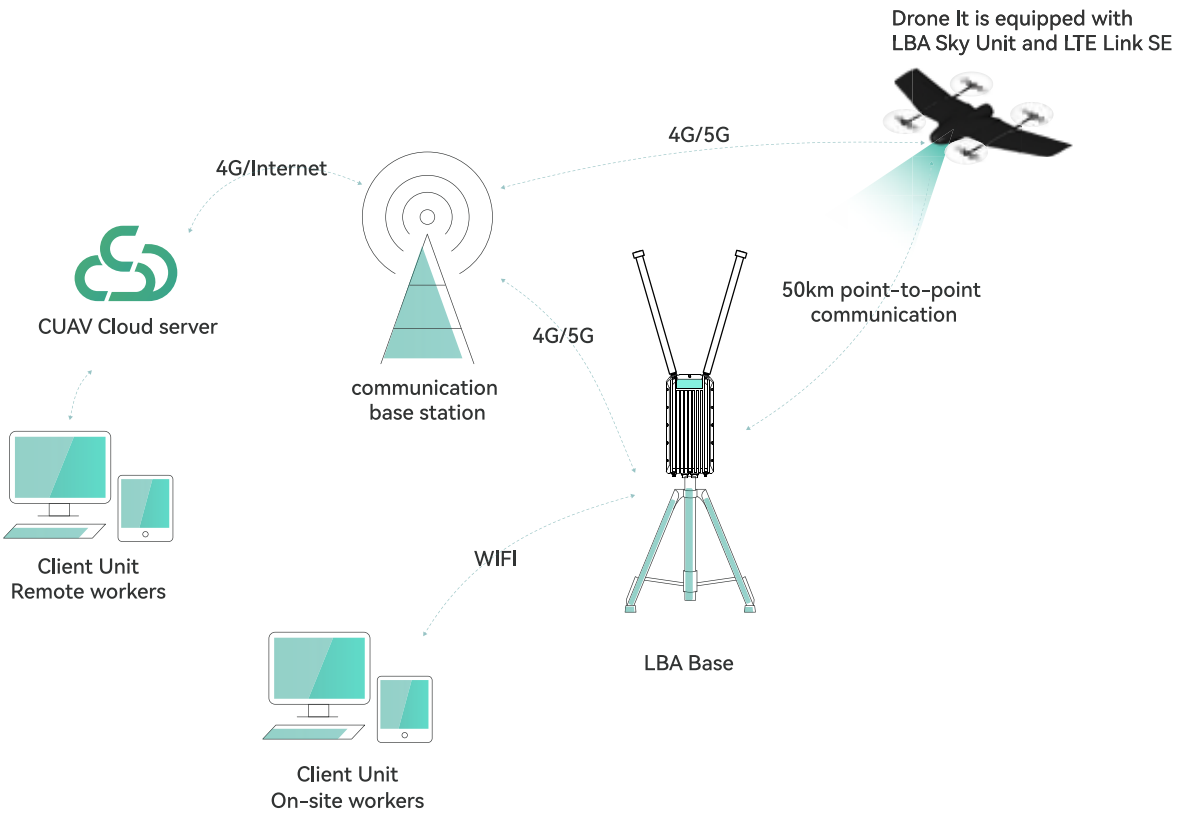
	Public Cloud	Private Cloud		
	Basic Edition	Starter Edition	Exclusive edition	Custom Edition
Air Link	-	2	5	Custom
LTE Link SE	-	2	5	Custom
软件				
Real-time data	Yes	Yes	Yes	Yes
Real-time video	Yes	Yes	Yes	Yes
Equipment management	Yes	Yes	Yes	Yes
Remote control	Yes	Yes	Yes	Yes
Team number	1	2	5	Custom
Team members	2	4	8	Custom
Team devices	5	4	8	Custom
Join the team	1	2	5	Custom
APP Name/LOGO/Start interface customization	No	No	No	Yes
Pricing				
Price	Free	$4999 One year maintenance free	￥69999 One year maintenance free	Contact us

LBA 3
Communication Micro Base Station

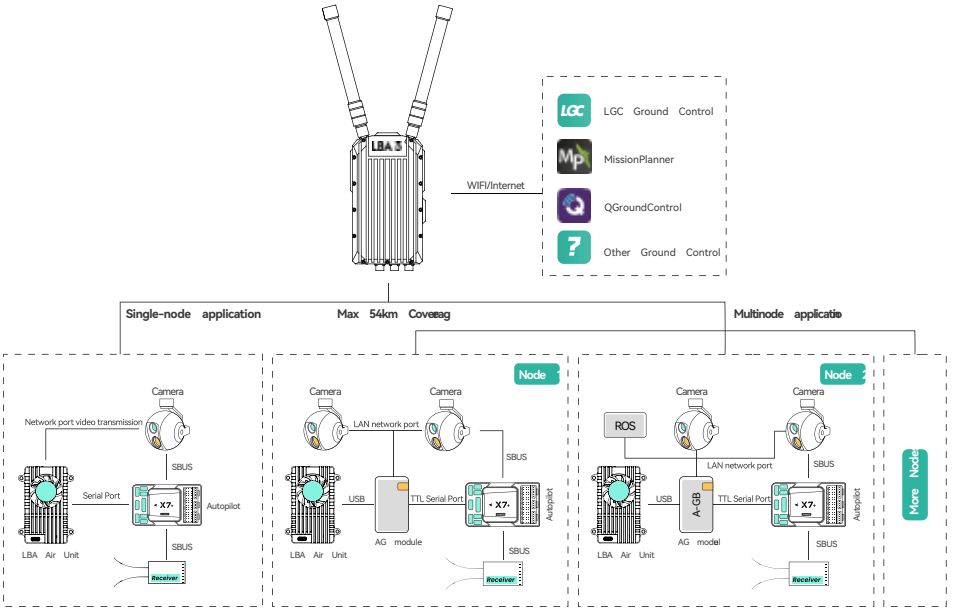
- 54km coverage area
- 30Mbps large bandwidth
- 16-node network
- Flying in formation
- Private network /4G/5G hybrid communication
- IP67 industrial protection

LBA 3 is a micro base station equipment for medium and long-distance networking communication of UAVs. It has a coverage of 54km, 30Mbps large-bandwidth communication, and supports a multi-unit network of up to 16 nodes. It is equipped with CUAV LGC Ground Control Station, which can realize drones Fly in formation to meet more diverse application requirements of users.

LBA 3 Communication Schematic Diagram



LBA 3 Multi-node Communication Schematic Diagram



Transmit Range	1.4 GHz 5W 54KM 800MHz 5W 54KM
Frequency band	1420-1448MHz / 806~826MHz
Anti-interference	Dynamic frequency hopping, intelligent frequency hopping in the frequency band
RF power	5W max
Communication bandwidth	Standard version: 30Mbps Professional version (Customized): 100Mbps
Network node	Standard version: 2~16 Professional version (Customized): 2~64 depending on the bandwidth
Network type	point-to-point/point-to-multipoint
Encryption	Support AES265
Modulation	Support QPSK、16QAM、64QAM modulation
Modulation	slave node-central node transmission delay <=150ms
boot delay	Central node/slave node start-up delay is less than 15s
management interface	Base station WEB management interface-support

LTE network type	All Netcom TD-LTE/FDD LTE/TD-SCDMA/ WCDMA
DC IN	Base Unit: 20V~60V input (standard power consumption 24V 1.5A) / POE 90W support Air unit: 20V~60V input (standard power consumption 24V 1A)
Size	Base Unit: 220 × 120 × 50mm Air Unit: 88 × 50 × 20mm
Operating Temperature	-15~+65°
Weight	Base Unit: 1500g Air Unit: 150~200g
Interface	Base Unit: SMA antenna interface X2, XT30 power interface X1, RJ45 data X1, USB X1, TTL serial port X1 Air Unit: N head antenna interface X2, XT30 power interface X1, POE network interface X1, LAN network interface X1
Splash and Dust Resistant	Base Unit IP67 Air Unit IP20

LTE Link SE

CUAVCloud 4G Link

- 60ms data delay
- Take-off video auto record
- 1080P video at 250ms delay
- 4G network communication, unlimited distance control
- Data encrypted transmission

LTE Link SE is a 4G video and data transmission link for UAV, can be connected to CUAVCloud system, support CUAV GS Android ground station, FeiGong Transmission, through FeiGong Transmission, can also use APM, QGC ground station. 1080P HD Video, delay can be as low as 250ms, digital transmission delay 60ms.

Network Frequency	LTE (FDD): B1、B3、B8 LTE (TDD): B38、B39、B40、B41 DC-HSPA+/HSPA+/HSPA/UMTS : B1、B5、B8、B9 TD-SCDMA: B34、B39 EDGE/GPRS/GSM : 900/1800 MHz
Network Rate	DC-HSPA+: Download:42 Mbps uploda: 5.76 Mbps LTE TDD: Downlaod:112Mbps uploda: 10Mbps LTE FDD: Downlaod:150 Mbps uploda: 50 Mbps
Autopilot	CUAV Autopilot,Pixhawk etc
Data protocol	Mavlink1、Mavlink2
Video input	1080P、720P
Video output	1080P、720P、480P、320P
Video codec	H265
Video input	HDMI
Antenna interface	MMCX

Device screen	OLED 128*64DPI
Voltage input	12 - 55V
Temperature	-10 - +60° C
Size	75.3mmX39.2mmX19mm
Weight	78g

Air Link
CUAVCloud 4G Link

- 40ms data delay
- 4G network communication, unlimited distance control
- Data encrypted transmission
- Remote configuration and operation are more convenient

Air Link is a cost-effective 4G data transmitter for UAV, with 20-40ms delay, which is very suitable for UAV swarms and teamwork operations. Equipped with AirLink data transmission, it can support access to CUAVCloud intelligent network system and enjoy a variety of team management functions.

Network Frequency	LTE (FDD): B1、B3、B8 LTE (TDD): B38、B39、B40、B41 DC-HSPA+/HSPA+/HSPA/UMTS : B1、B5、B8、B9 TD-SCDMA: B34、B39 EDGE/GPRS/GSM : 900/1800 MHz
Network Rate	DC-HSPA+: Download:42 Mbps uploda: 5.76 Mbps LTE TDD: Downlaod:112Mbps uploda: 10Mbps LTE FDD: Downlaod:150 Mbps uploda: 50 Mbps
Autopilot	CUAV Autopilot,Pixhawk etc
Data protocol	Mavlink1、Mavlink2
Communication delay	20-40ms
Autopilot type	V5+、V5 Nano、Pixhack、Pixhawk etc
Autopilot firmware	PX4/Ardupilot
Antenna interface	MMCX inner hole

Voltage input	12 - 55V
Temperature	-10 - +60° C
Size	54.5mmX33.5mmX13.5mm
Weight	42g

Pixhawk V6X
Flight Controller

- H7 Double-precision floating-point processor
- High-performance ARM M3 coprocessor
- Low noise Car-grade IMUs.
- Triple redundant IMUs and dual redundant barometer designs.
- Car-grade RM3100 magnetic compass
- New built-in shock absorption design

Pixhawk V6X is a new generation of Pixhawk built by CUAV&PX4, based on the modular design of Pixhawk FMU V6X standard, the pursuit of the ultimate safety and stability, users can also customize the carrier board according to their needs.Using H7 double-precision floating-point arithmetic unit and Cortex-M3 coprocessor, three redundant IMUs with independent bus and power supply, IMU temperature factory pre-calibration technology, double redundant barometer design, and new generation of patented shock absorption design to ensure the flight safety and rich expansion capabilities of the UAV in an all-round way; The integrated 100M Ethernet interface can communicate with industrial UAV mounting equipment such as task computers, optical fiber inertial navigation, and mapping cameras, which meets the needs of high-end UAVs

Hardware tandrard	Pixhawk FMUV6X
Processor	STM32H753IIK6
Coprocessor	STM32F10X
Acce&Gyro	ICM42688-P， ICM-20649， BMI088
Compass	RM3100
Barometer	2×ICP-20100
PWM I/O	16
Power	4，2 for UAVCAN，2 for SMBUS
GPS	2，1 GPS port with I2C and safety switch (GPS1) 1 interface with I2C and GPS (GPS2)
TELEM	3
CAN	2
PPM RC	1, for PPM receiver
SBUS/DSM/ RSSI	1， for SBUS/DSM/Spektrum in and Analog (3.3V)/PWM input
SBUS_OUT	1

FMU Debug	1
IO Debug	1
Ethernet	1
SPI EXTERNAL1	1(SPI6 interface，for expanding external sensors)
ADIO	1， AD3.3/ADC6.6
UART4	1
USB	2 1 for Type C 1 for GH interface USB
TF slot	1
Operating Voltage	4.75~5.45V
Servo Input voltage	0~9.9V
Operating temperature	-20~85℃
Size	45 × 90 × 29.2mm
Weight	98g

X7+
Flight Controller

- Built-in shock absorption
- 3 sets of Imus support intelligent failover
- Support temperature compensation
- Support CAN ammeter
- Modular design, support custom baseboard

The X7+ flight controllers are for professional-grade users. The X7+ series features high-end processors, sensors, and industrial-grade compasses, built-in CAV's patented shock absorption design and temperature compensation system, with processing speeds up to 480MHz, 1M memory, and 2M flash memory. The X7+ series has better stability and immunity to interference.

Processor	STM32H743
Frequency	480MHz
Flash	2MB
RAM	1MB
Acce&Gyro	ICM-42688-P， ICM-20689，ICM-20689
Compass	RM3100、
Barometer	MS5611 × 2
UART	5
I2C	6 (2 interface are integrated in GPS&SAFETY&UART4)
CAN	2 个
ADC IN	1 (Support 6.6V/3.3V)"
SPI	1 个
PWM OUT	14 (M1~M12 Support DSHOT protocol)
RC IN	1 (Support PPM SBUS DSM)
RSSI	PWM or 3.3V analog voltage
Power IN	2 (Power A for ADC protocol, Power C for CAN protocol)

GPS Port	2
Safety switch	Integrated into GPS&SAFTETY port
Beeper	Integrated into GPS&SAFTETY port
Debug	1(UART7)
JATG	1
USB	Type-C × 1
TF slot	1
Rated voltage	4.5 ~ 5.5V
USB voltage	4.75 ~ 5.25V
Servo voltage	0 ~ 36V
Working Temp	-20 ~ 85℃
Size	77 × 45.5 × 39mm
Weight	104g

X7+ Pro
Flight Controller

- Aero-Grade ADI16470 Sensor
- Built-in shock absorption
- 3 sets of Imus support intelligent failover
- Support temperature compensation
- Support CAN ammeter
- Modular design, support custom baseboard

X7+ Pro flight controllers are for professional-grade users. The X7+ series features high-end processors, sensors, and industrial-grade compasses, built-in CAV's patented shock absorption design and temperature compensation system, with processing speeds up to 480MHz, 1M memory, and 2M flash memory. X7+ Pro uses a vehicle-grade ADIS16470 sensor to further improve stability

Processor	STM32H743
Frequency	480MHz
Flash	2MB
RAM	1MB
Acce&Gyro	ADIS16470 ， ICM-42688-P，ICM-20689
Compass	RM3100
Barometer	MS5611 × 2
UART	5
I2C	6 (2 interface are integrated in GPS&SAFETY&UART4)
CAN	2 个
ADC IN	1 (Support 6.6V/3.3V)"
SPI	1 个
PWM OUT	14 （M1~M12 Support DSHOT protocol)
RC IN	1 (Support PPM SBUS DSM)
RSSI	PWM or 3.3V analog voltage

Power IN	2 (Power A for ADC protocol, Power C for CAN protocol)
GPS Port	2
Safety switch	Integrated into GPS&SAFTETY port
Beeper	Integrated into GPS&SAFTETY port
Debug	1(UART7)
JATG	1
USB	Type-C × 1
TF slot	1
Rated voltage	4.5 ~ 5.5V
USB voltage	4.75 ~ 5.25V
Servo voltage	0 ~ 36V
Working Temp	-20 ~ 85℃
Size	77 × 45.5 × 39mm
Weight	105g

Nora+
Flight Controller

- Classic side interface design
- Built-in shock absorption
- 3 sets of Imus support intelligent failover
- Support temperature compensation
- Support CAN ammeter
- Modular design, support custom baseboard

Nora+ is a cost-effective flight controller with excellent performance, compact body and light size. Built-in industrial GRADE RM3100 compass, CUAV patented shock absorption design and temperature compensation system for better stability and interference immunity.

Processor	STM32H743
Frequency	480MHz
Flash	2MB
RAM	1MB
Acce&Gyro	ICM-42688-P， ICM-20689，ICM-20689
Compass	RM3100、
Barometer	MS5611 × 2
UART	5
I2C	6 (2 interface are integrated in GPS&SAFETY&UART4)
CAN	2 个
ADC IN	1 (Support 6.6V/3.3V)"
SPI	1 个
PWM OUT	14 (M1~M12 Support DSHOT protocol)
RC IN	1 (Support PPM SBUS DSM)
RSSI	PWM or 3.3V analog voltage

Power IN	2 (Power A for ADC protocol, Power C for CAN protocol)
GPS Port	2
Safety switch	Integrated into GPS&SAFTETY port
Beeper	Integrated into GPS&SAFTETY port
Debug	1(UART7)
JATG	1
USB	Type-C × 1 GH1.25 × 1
TF slot	1
Rated voltage	4.5 ~ 5.5V
USB voltage	4.75 ~ 5.25V
Servo voltage	0 ~ 36V
Working Temp	-20 ~ 85℃
Size	64 × 46 × 22mm
Weight	80g

V5+
Flight Controller

- FMUv5 hardware standard, more advanced and stable than FMUv3
- Built-in shock absorption
- Support RTK centimeter-level GNSS module
- Multi-sensor redundant design
- Full model support
- Modular design, support custom baseboard

The V5+ is a premium flight controller designed by the CUAV and PX4 teams and manufactured by CUAV. Based on the Pixhawk FMUv5 design standard, perfectly compatible with PX4 and Ardupilot firmware, Modular design supports user-customized baseboard

Main Processor	STM32F765 + STM32F100
Acce&Gyro	ICM-20602， ICM-20689， BMI055
Compass	IST8310
Barometer	MS5611
EEPROM	256K
PWM OUT	8+6
UART	5
I2C	4
CAN	2
RSSI	1
DEBUG	1
SPI	1
ADC_IN	2
SBUS_OUT	1
JATG	1

Safety Switch	1
Buzzer	1
TF slot	1
Power interface	2
Detection module	ADC analog
Rated voltage	4.5 ~ 5.5 V
Working Temp	-20 ~ 85° c
Size	85.5×42 ×33 mm
Weight	91g

NEO 3
GNSS Module

- Ublox M9N satellite receiver, accuracy up to 0.7m
- Support Beidou, Galileo, Glonas, GPS four satellite systems
- Supports simultaneous reception of four satellite systems
- Triple filter design

NEO 3 is a cost-effective M9N navigation and positioning product with a single point positioning accuracy of up to 0.7m. The integrated positioning system, magnetic compass, flight control status light, flight control siren in one, can receive four major satellite navigation and positioning signals at the same time, is an ideal alternative to M8N GPS.

Processor	-
Protocol	UART/IO/I2C
Compass	IST8310
GNSS receiver	Ublox M9N
Satellite support	GPS/QZSS L1 C/A， GLONASS L10F ，BeiDou B1I,Galileo E1B/C，SBAS L1 C/A:WAAS, EGNOS, MSAS, GAGAN
GNSS concurrently	4 (Supports Beidou,Galileo,GLONASS,GPS receive at the same time)
Speed accuracy	0.05m/s
Positioning accuracy	2.0M (Highest 0.7M)
Sensitivity	Tracking and nav. -167dBM; Cold start-148dBM; Hot start -159dBM; Reacquisition -160dBM

Satellite Capture	32+
Acquisition	Cold start 24S ; Reacquisition 2S ; Aided start 2S
Port Type	GHR-10V-S
Nav. update rate	25Hz(Max)
Rated voltage	4.7~5.2V
Working Temp	-10~70℃
Size	60 × 60 × 15.8mm
Weight	33g

- Ublox M9N satellite receiver, accuracy up to 0.7m
- Support Beidou, Galileo, Glonas, GPS four satellite systems
- Supports simultaneous reception of four satellite systems
- Triple filter design

NEO 3 Pro is an M9N navigation product using the UAVCAN communication protocol. Integrated positioning system, magnetic compass, flight control status light, flight control siren, barometer in one, industrial grade magnetic compass, can receive four major satellite navigation and positioning signals at the same time.

Processor	STM32F412
Protocol	UAVCAN
Compass	RM3100
GNSS receiver	Ublox M9N
Satellite support	GPS/QZSS L1 C/A，GLONASS L10F，BeiDou B1I,Galileo E1B/C，SBAS L1 C/A:WAAS, EGNOS, MSAS, GAGAN
GNSS concurrently	4 (Supports Beidou,Galileo,GLONASS,GPS receive at the same time)
Speed accuracy	0.05m/s
Positioning accuracy	2.0M (Highest 0.7M)
Sensitivity	Tracking and nav. -167dBM; Cold start-148dBM; Hot start -159dBM; Reacquisition -160dBM
Satellite Capture	32+

Acquisition	Cold start 24S Reacquisition 2S Aided start 2S
Port Type	GHR-10V-S
Nav. update rate	25Hz(Max)
Rated voltage	4.7~5.2V
Working Temp	-10~70℃
Size	60 × 60 × 15.8mm
Weight	33g

C-RTK 9Ps
Centimetre-Level GNSS Module

- Multi-star Multi-frequency Receiver
- Centimeter-Level Positioning
- Dual RTK For Yaw
- Dual-end Switchover design reduced costs

The C-RTK 9Ps is a Multi-star Multi-frequency GNSS system, It also supports dual GPS for yaw which can replace compass, is useful for flight in complex magnetic environments such as close to power lines. It is a very cost-effective centimeter-level RTK module compatible with PX4/ ArduPilot open-source flight controllers. It is an ideal choice for UAV mapping, agricultural applications, high-precision takeoff and landing, ship takeoff and landing and other applications requiring real-time high-precision navigation.

Receiver	184 channel ZED-F9P(ublox)
Compass	IST8310
GNSS	GPS、Beidou、Galileo、GLONASS
Concurrent GNSS	4
GNSS Bands	GPS-L1C/A, GPS - L2C, GLONASS - L1OF, GLONASS- L2OF, GALILEO - E1B/C, GALILEO- E5b, BeiDou - B1I, BeiDou - B2I, QZSS - L1C/A, QZSS - L2C,
Nav. update rate	RTK 20Hz ; RAW 25Hz ; PVT 25Hz (The maximum limit is related to the concurrency setting)
Position accuracy	RTK: 0.01m+1ppm CEP GPS: 1.5m CEP; SBAS: 1.0m CEP
Convergence time	RTK<60s
Acquisition	Cold starts<24s Hot starts<1s
Sensitivity	Tracking and nav. −167dBm Cold starts −148 dBm Hot starts −157 dBm Reacquisition −160 dBm

Anti-jamming	Active CW detection and removal Onboard band pass fliter
Anti-spoofng	Advanced anti-spoofng algorithms
Antenna gain	Rover: 2dBi Base: 5dBi
PPK	unsupport
Dual RTK for yaw	Support (requires two C-RTK 9Ps); heading accuracy: 0.4edg (reference value)
Base/Rover switch	Support
Protocols	NMEA、UBX binary、RTCM 3.x
Interfaces	
UART	2
USB	1
Antenna Type	MMCX
Physical Characteristics	
Operating voltage	4.5V to 6V
Operating temperature	−40° C to +85° C
Size	47mm*32mm*12.2mm
Weight	30g(Module Only)

C-RTK 2
PPK Module

- Both Support RTK&PPK
- Support Hotshoe Trigger
- Multi-star Multi-frequency Receiver
- 25Hz raw data record

C- RTK 2 is a high-performance PPK/RTK positioning module created by CUAV for professional application fields such as UAV aerial survey; It integrates light appearance, industrial grade IMU, multi-star and multi-frequency satellite receiver, supports both RTK centimeter-level positioning navigation and RAW data recording for post-differential calculation. Supports shutter triggering and hotshoe synchronization. It adopts CAN bus protocol and is compatible with PX4/ArduPilot open-source flight controller. It can be applied to various specifications of multi-rotor, VTOL fixed wing, helicopter and other industrial use UAVs.

Receiver	ZED-F9P
Channel	184
Processor	STM32H743VIH6
Flash	2M
Ram	1M
Acce&Gyro	ICM-20689
Compass	RM3100
Barometer	ICP10111
TF Card	32G(Max)
PPK	Support
RTK	Support
GNSS system	GPS:L1C/A,L2C GLONASS:L1OF,L2OF Galieo：E1B/C,E5b Beidou：B1I,B2I
Enhanced system	QZSS:L1C/A,L2C,L1S SBAS:L1C/A
Concurrent GNSS	4
Nav Rate	RTK:20Hz（max） PPK:25HZ(max) default:5Hz
Convergence Time	RTK<10s
Accuracy (RMS)	RTK Level:0.01m+1ppm(RMS) RTK Vertical：0.02m+1ppm(RMS) GPS：1.5m(RMS)

Acquisition	Cold start：24s Hot start：1s Reacquisition：2s
Sensitivity	Tracking & Nav：-167dBm Cold starts：-148dBm Hot starts：-157dBm Reacquisitio：-160dBm
Anti-spoofng	Advanced anti-spoofng algorithms
Protocols	UAVCAN/NMEA/UBX(RAW)/RTCM3.3
Time pulse	0.25Hz~10Mhz(Configurable)
Anti-jamming	Active CW detection and removal Onboard band pass filter
Flight controller	Compatible with flight controllers running ArduPilot/PX4 firmware
Coordinate system	WGS84
Interface	Hotshoe×1 Shutter in×1 Shutter out×1 Type C×1 F9P USB×1 UART×1 CAN×1 MMCX Antenna×1
DC IN	4.5~6V
Operating temperature	-20~85℃
Size	56x33x16.5mm
Weight	39g

P9 Radio
Telemetry

- 902-928MHz frequency band
- 276kbps Link Rate
- 60km Range.
- Support 3S-12S Battary Input.
- Dual-end Switchover design reduced costs

P9 Radio is an ultra-long data telemetry module of UAV. It adopts the communication frequency band of 902-928MHz. It has a transmission distance of 60km and a link rate of 276kbps.P9 Radio supports 3-12s wide voltage input. It supports opoint-to-multiple, and relay communication, meet communication requirements in multiple application scenarios.

Frequency	902-928MHz
Spreading Method	Frequency Hopping
Protocols	Transparent transmission
Forward Error	Hamming, BCH, Golay, Reed-Solomon
Correction	Error Detection 32 bits of CRC, ARQ
Encryption	Optional (see –AES option)
Range	60km+
Sensitivity	-110 dBm @ 115.2 kbps -108 dBm @ 172.8 kbps -107 dBm @ 230.4 kbps
Transit power	Hopping: 100mw~1000mw(20~30dBm) Default: 1000mW
Antenna gain	5DBi
Serial type	3.3V CMOS TTL
Link Rate	Up to 276kbps
Baud Rate	Max 230.4kbps; 57600(default)

Operating Modes	Auto Routing, Store and Forward,Self Healing, Packet Routing Modes
Input voltage	12V-60V Sleep< 1mA Idle< 3.5mA RX :35~80mA TX(Peak) :<2A
Interface	Antenna: SMAinner needle; Serial: GHR-06V-S USB: TYPE-C Power: XT30PW-M
Operation Temperature	-40° C~85° C
Humidity	5% to 95% noncondensing
Weight	P9 module; 55g antenna 31g; total 86g
Size	65mm×40mm×16.5mm

- 840-845MHz frequency band
- 345kbps Link Rate
- 60km Range.
- Support 3S-12S Battary Input.
- Dual-end Switchover design reduced costs
- Point-to-Point, Point-to-Multipoint, Repeat Mode

P8 Radio is an ultra-long data transmission module of UAV. It adopts the communication frequency band of 840MHz. It has a transmission distance of 60km and a transmission rate of 345Kbps. It supports opoint-to-multiple, and relay communication, meet communication requirements in multiple application scenarios.

Frequency	840~845MHz
Spreading Method	Frequency Hopping/ Fixed Frequency, GMSK, 2GFSK, 4GFSK, QPSK
Forward Error Correction	Hamming, BCH, Golay, Reed-Solomon, Viterbi
Error Detection	32 bits of CRC, ARQ
Range	60km
Sensitivity	-109dBM@115.2kbps -108dBm@172.8kbps -106dBm@230.4kbps
Transit power	100mw~1000mw(20~30dBm) ; default: 1000mW
Antenna gain	3DBi
Serial interface	3.3V CMOS TTL
Link Rate	345kbps Max
Baud rate	300bps to 230kbps(57600)
Operating Modes	Point-to-Point, Point-to-Multipoint, Repeat Mode

Input voltage	12V~60V
Input Current	>2.5A
Power consumption	Sleep: < 1mA (Future) Idle: 20mA Rx: 45mA to 98mA Tx Peak: 2A
Interface	Antenna: SMA inner needle Serial: GHR-06V-S USB: TYPE-C Power: XT30PW-M
Operation Temperature	-40° C~85° C
Weight	P8 module;:55g Antenna:31g Total: 86g
Size	65mm×40mm×16.5mm

XB Pro Radio
Telemetry

- 6.5km Range
- 200kbps link rate
- Dual-end Switchover design reduced costs
- Integrated RSSI signal strength output

The XB Pro is an easy-to-use telemetry module that provides best-in-class wireless connectivity for drones or IoT devices. The DigiMesh network protocol shares a common hardware serial port that provides a variety of different protocols, allowing users to integrate into drones or devices with minimal development time and risk. Proprietary point-to-multipoint configuration, the module supports up to 28 miles (with high-gain antenna) RF line-of-sight range, 200 Kbps data rate, ideal for extended range applications that require increased data throughput

Hardware	
Frequency	902 ~ 928 MHz
Processor	ADF7023 transceiver，Cortex-X3 EFM32G230@28MHz Programmers include：Freescale MC9s08QE32
Antenna selection	wire.U.FIL and RPSMSA
Performance	
Link rate	10kbps~200kbps, default 200kbps
Urban / indoor distance	10kbps: Up to 2000 feet (610 meters); 200kbps: Up to 1000 feet
Outdoor/Suburban Distance	10kbps: up to 15.5km 200kps: up to 6.5km
Maximum power	24dBM (250mw) software optional
Receiver sensitivity	-101dBM@200Kpds ;-110dBm@10kbps
Characteristic	
Data interface	UART(3V) .SPI
GPIO	15 digital iO, 4 10-bit ADC inputs, 2 PWM outputs

Network Topology	DIgiMEsh, relay, point-to-point, point-to-multipoint, peer-to-peer network
Spread spectrum	SFHSS (software optional)
Programmability	
Internal storage	32kb FLASH/2kb RAM
CPU clock	Up to 50MHZ
Power	
Service voltage	4-7v
Emission current	229mA
Receive current	44ma
Sleep current	3uA
Management agency certification	
FCC（America）	MCQ-XB900HP
iC（Canada）	1846A—XB900HP
C-tick(Australia)	Yes
Anatel（Brazil）	Yes
IDA（Singapore）	Yes

SX Radio
Telemetry

- Built-in XTEND RF module supports a variety of advanced network options and topology modes.
- Smaller size, lighter weight, consistent functionality and performance.

The SX Radio features a xtend main chip, a highpower, high-speed, high-reception sensitivity digital transmission module. It has built-in U.S. DIGI's XTEND RF module, transmits up to lOOOmw, ISM 900MHZ legal frequency, and supports a variety of advanced network options and topology modes.

Emission Power	1mW-1W(0-30dBm)
Transmit Distance	64km
Link Rate	115.2kbps
Uart Rate	230.4kbps
Receiver sensitivity	-110 dBm@9600bps
Wireless Tech	FHSS
Network Topology	Point-to-Point, Point-to Multipoint, Relay Mode
Troubleshooting	Retry and confirm, multiple transfers
Filter options	VID (vendor ID number), channel, and addressing
Channel capacity	10 hop sequences share 50 frequencies
Address Assignment	Each channel provides 65000 network addresses.
Encryption	256-bit AES
DC IN	2.8 -5.5 VDC
Emission Current	730 mA

Received Current	80 mA
Sleep Current	5uA
Freq. Band	902- 928 MHz
Date Interface	3V — 5VCMOSUART
Size	52 × 39 × 16mm
Weight	39g(Exclude) ： 62g(Include)
Anntena Type	RPSMA
Operation Temperature	-40° C ~ 85° C
Management agency certification	
FCC（America）	MCQ-XB900HP
iC（Canada）	1846A—XB900HP
C-tick(Australia)	Yes
Anatel（Brazil）	Yes
IDA（Singapore）	Yes

CAN PDB
Multifunctional Basebard

- Support 14~60V voltage input, 110A current.
- 0.1A, 0.05V power measurement accuracy
- 14 PWM outputs
- 5V/6A and a 12V/4A stabilized output
- Thickened tinned PCB to reduce internal resistance
- Power indicator LED, visually display battery voltage status.

CAN PDB is a multi-functional baseboard of CORE flight controller, which provides abundant interfaces, integrates the functions of power module and power distribution board, and supports voltage input of 14~60V, and provide continuous working current up to 110A. It adopts self-developed ITT algorithm and has high accuracy power detection of 0.1A and 0.05V,. It has 10 power output welding points, and provides a 5V/6A and a 12V/4A stabilized output to provide power for external device. Supports the CORE modules of V5 +,X7 +, and X7+ Pro flight controller.

Main SPEC	
Proccessor	STM32F412 100Mhz 512K Flash 256K RAM
Input voltage	10-60（3-15S Lipo）
Current measurement range	0-110A
Maximum current range	0-180A
5V output	max 6A,stagle 6A
12V output	max 4A，stable 3.5A
Servo power output	0V/5.4V/7.4V/8.2V configurable up to 8A
Servo	14
Receiver Protocol	SBUS/PWM/DSM
CORE support	V5+ X7 X7+ X7 Pro CORE
Support Model	Copter/Plane/Helicopter/VTOL/unmanned vehicle/Rover, etc.
Firmware	ArduPilot 4.0.0 or above Px4 1.11.0 or above
Screw hole	CORE for M2.5, other for M3
Work Temperature	-20~+100° C

Main IO	
USB	1 (type-c)
UART	5(Include gps/uart4/telem1/telem2/debug)
CAN bus	2
I2C bus	3
SBUS/DSM IN	1(dupont connector)
PPM_IN	1
PWM OUT	14(Dupont connector)
ADC3.3	1
ADC6.6	1
SBUS OUT	1(useless when install X7/X7 pro/X7+ core)
RSSI	3.3V anolog voltage
DSU7	1
Size&Weight	
Size	12cm(L)×10cm(W)×1.2cm(H)
Weight	163g(include cable)
Cable Length	30cm(not include connector)

CAN PMU
Power Module

- 0.05V 0.1A accuracy
- 5V/5A regulated output
- Maximum support 62V voltage input, 110A current measurement
- Self-developed ITT algorithm

CAN PMU is a power management module, running self-developed ITT algorithm, can accurately measure UAV voltage, current, output in real time, the maximum support 6-62V voltage and 110A current, support output 5.4V/5A to the flight controller power supply, the use of CAN digital communication protocol, reduce data error problems.

Processor	STM32F412 100Mhz 512K Flash 256K RAM
Voltage input	6-62V(2-15S)
Max current	110A
Voltage accuracy	±0.05V
Current accuracy	±0.1A
Resolution	0.01A/V
Max output power	6000W/90s
Max stable power	5000W
Power port output	5.4V/5A
Protocol	UAVCAN
Operating temp	-20℃ ~ +100℃
Firmware upgrade	Support

Calibration	No need
Connector	XT90(Cable end)/Amass 8.0(Module end) Power:5025850670 CAN: GHR-04V-S

CPDB Pro
Power Module

- Supports higher power output current: 5A.
- Maximum (detection) current: 60A.
- Maximum output current: 60A.
- Independent 12V4A interface
- Supports higher input voltage: 10V-60V.
- More accurate current and voltage detection: voltage detection accuracy: +-0.1v; Current detection accuracy:+-0.2A.

CPDB is an on-board device with voltage, current detection and power distribution board functions, providing the flight control with power, voltage and current signals, as well as a separate two interfaces to output 5V and 12V, this version of the equipment is not only suitable for four-rotor also suitable for six or eight-rotor drones (the same pad can weld two power cords),

Rated voltage	10~60v
Working current	0~80A(Maximum measurable current 60A)
Current accuracy	0.2A
Voltage accuracy	0.1V
ESC power interface	4
Weight	35g
12v out	4A

5V out	2A
FC power	5A
Battery interface	XT60
12V OUT/5V out/FC Prower	GH1.2

CAN PMU Lite
Power Module

- Support 10 ~ 62V voltage input.
- Maximum measuring current: maximum 110A.
- Accuracy voltage and current detection: current accuracy within 80A is 0.2, voltage accuracy is 0.15V.
- Power indicator LED : visually indicate Lipo voltage status.

CAN PMU Lite is a CUAV standard power management module with built-in STM32F412 processor, supporting 10~62V voltage input and 5.2V/4A regulated output. PMU Lite has built-in ITT temperature compensation algorithm and is factory calibrated to ensure that more accurate voltage and current data can be obtained at different temperatures.

Processor	STM32F412CEU6
Input voltage	10-62V(2-15S Lipo)
Maximum current	110A
Voltage accuracy	±0.15V
Current accuracy	±0.2A
Resolution	0.01A/V
Maximum output power	4200W/90S(stable 3600W)
5V regulated output	Maximum 5A, stable 4A
Communication protocol	UAVCAN
Working Temp	-20~+100℃
Firmware upgrade	Suppor

APM firmware suppor	Available for Rover 3.5.1 and above Available for Copter 3.7 and above Available for Plane 3.10 and above Available for Heli3.7 and above
PX4 firmware suppor	PX4 Pro V1.10.1 or higher
Interface Type	IN/OUT:XT60-M/XT60-F Power/CAN:502585-0670 Other:SM06B-GHS-TB
Size	15g
Weight	140 × 25 × 13mm

H16/H16 Pro
Remote controller

H16/H16 PRO -- supports HDMI, network port, SENSOR interface, dual serial port passthrough, S.BUS and other rich interfaces, and supports more cameras, gimbals and other video equipment.Provide development kit, SDK and technical support.Support video levitation, mainstream flight control ground station, QGC, support wireless RTSP video stream sharing.

CPU	Pinecone S1
Transmission distance	10KM(H16);30km(H16 pro)
Working frequency	2.400~2.483GHZ
Receiver sensitivity	20DB@CE/23DB@FCC
Bandwidth	20M
Endurance	6~20h
Frequency hopping	FHSS
Upgrade	Online upgrade
Install app	Support
QGC version	Official Universal Edition
Material	Plastic
Screen size	7inch
Screen type	LCD
Resolution	1920×1200
Brightness	2000nit
Rc size	272 X 183 X 94mm

Battery	20000mah
RC output	16 Channel sbus
Receiver sensitivity	0DB@CE/23DB@FCC
Operating Voltage	7.2-72v
Power consumption	2.4W
Size	76×59×11mm
Weight	90g
Material	Plastic
Por	MIPI*1、HDMI*1、RJ45*1 BAT+SBUS*1、TYEPE C*1、TF*1
Antenna type	Whip antenna
Working Temp	-10℃ ~+55℃

MK15
Remote controller

MK15 is a 15 kilometer range Android smart controller with dual 1080p FPV,based on the full high-definition image transmission technology. The system is deeply optimized and integrated with Qualcomm 8-core CPU platform.MK15's abundant features and powerful performance make it a commonly applied device of reliable image transmission and solid control on agriculture drones, commercial drones, unmanned vehicles and boats, and robotics.

Transmission Distance	15KM
Channel	13
Flight control	Cuav Series Pixhawk series
Communication	WiFi (2.4g) 4G mobile network 5.8G telemetry transmission
Mobile network	GSM//EGRPS : EGSM900/DCS1800
Requency band	WCDMA: B1/B8 LTE FDD: B1/B3/B5/B7/B8 LTE TDD: B34/B38/B39/B40/B41 EVDO/CDMA: BC0
Processor	Qualcomm octa-core processor
System version	The Android 9.0
Storage	RAM: 2GB Storage: 16GB
Working frequency	5.8 G
Bandwidth	20M
Transmission Power	25db
Worktime	13 h
APP	Free to install software (QGC, MP, etc.)
Charging	20W PD charging (30W optional)
Brightness	1000cd/m2
Batter	10200 mAh 7.4V 2S batter
Antenna	5 DBI rod antenna

Interface	Type C*1(charging);Rocker * 2;Roller * 2 Data *2(upgradefirmware +RTK); SIM card slot *1 (mobile network); TF*1; HDMI*1;USB A * 1 (USB)
Buttons	Three-gear switch *3; Function button *4
Size	189 x 138 x 41 mm
Weight	850 g
Material	-10℃ ~ 55℃
Signal output	16 channel SUBS / 5 channel PWM
IQ	S.BUS*1 Data serial port UART*1 PWM channels* 5 Video input *1 Type-C*1 SMA antenna interface *2
Support camera	Interface Camera *2/ Interface Camera +HDMI
The antenna	5 DBI rod antenna
Working voltage	25.2 ~ 58.8V (6S ~ 14S)
Size	70 x 55 x 16 mm
Weight	100g

SKYE
Airspeed Sensor

- Built-in STM32F4 processor
- DroneCAN Protocol
- Dual temperature compensation system
- Intelligent de-icing
- IP44 protection class
- Automatic drainage design

SKYE Airspeed sensor highly integrated STM32F4 processor, MS5525 pressure sensor, temperature and humidity sensor, dual temperature compensation system as one, with IP54 protection performance, the new high-power heating system can automatically de-icing water, the manned aircraft airspeed tube heating function innovatively introduced into the field of unmanned aerial vehicles, effectively reduce the probability of data errors, greatly improve the safety of unmanned aerial vehicles.

Main Parameter	
Processor	STM32F4
Protocol	DroneCAN
Pitot tube temperature control type	Resistance heating
Airspeed sensor	MS5525
Sensor performance	
Airspeed measurement range	±500km/h
Airspeed accuracy	±0.69Pa
Total Error Band	±2.5%FS
Temperature measurement range	-15℃ -150℃
Humidity measurement range	0-100%

Pysical characteristics	
Pitot tube heating power	32W
DC IN	Default 12-36V
Operating Temperature	-20℃ ±75℃
Size	82.5×30.4×28.2mm
Weight	22g
Protection Level	IP54（To be installed on request）

MS5525
空速计

- 无人机在有风的条件下，稳定飞行和着陆，避免失速

MS5525 airspeed meter is an airspeed measurement module launched by CUAV for plane or VTOL UAV. It measures the relative speed of the aircraft and the air. It can help the UAVs to fly and land stably under windy conditions and avoid crash . It is an indispensable part of plane and VTOL UAVs.

Main Parameter	
Sensor	MS5525
Accuracy	±0.84pa(±0.25%)
Firmware support	Ardupilot、PX4
Interface	I2C
Working Pressure	1psi(6.89kPa)
Maximum Pressure	20psi(137.9kPa)

Input voltage	4.7~5.2V
Working temperature	-20° C ~ 80° C
Weight	2g(Sensor) 15g (Airspeed tube)

TF Luna

- Light weight: ≤ 5g, suitable for strict situations such as weight-bearing requirements.
- Range 0.2m-8m close-range low-cost ranging module, the product has a high stability, high precision, high sensitivity distance detection.
- Small size, easy to install, easy to integrate.

TF-Luna is a ToF-based, single-point rangefinder with an 850nm infrared light source and a unique optical and electrical design for stable, accurate and highly sensitive distance measurements.

Accuracy	±6cm@ (0.2m-3m) 3 ±2%@ (3m-8m)
Distance resolution	1cm
Frame rate	1~250Hz 4
Ambient light immunity	70Klux
Working Temp	-10℃ ~60℃
Working Temp	VCSEL

Central wavelength	850nm
Central wavelength	Class1 (IEC60825)
FOV	2° 5
Supply voltage	3.7V-5.2V
Size	35 × 21.25 × 13.5mm

TF02 Pro

- High range up to 40m.
- High ambient light resistance for up to 100Klux operation.
- High frame rate with up to 1000Hz output frequency supported.
- Low power consumption: Average power consumption is less than 1W.

TFO2-Pro is a new generation of point rangefinder based on TF02's extensive application experience, with higher performance based on the ToF (flight time) principle.

Distance resolution	1cm
Frame rate	1-250Hz [4]
Ambient immunity	70Klux
Working Temp	-10° C ~ 60° C
Light source	VCSEL
Central wavelength	850nm
Photobiological safety	Class1(IEC60825)
FOV	2
Supply voltage	3.7v-5.2v
Average current	≤ 70mA
Power consumption	≤ 0.35W
Peak current	150mA

Communication level	lvttl(3.3V)
Communication interface	UART/12C
Dimension	35×21.25×12.5mm
Housing	ABS+PC
Storage temperature	-20° C ~ 75° C
Weight	<5g

IST8 Compass

- Ultra-small size, easy installation, excellent immunity.
- The built-in iSentek's 3×3mm LGA package is a geomagnetic sensor.
- Compatible with PX4 and ArduPilot firmware.

The IST8 compass module is built into iSentek's 3×3mm LGA package of geomagnetic sensor IST8310, which is widely used in drone products. The PX4 and ArduPilot have applied it to the Pix flight control and can be used as an external compass for the V5 flight control.

Youtube

CUAV Tech Inc.,Ltd
www.cuav.net