axldrone
your world from above

axl OneView Remote Controller

User Manual V2.0 | 26.01



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Table of Contents

Overview 1
Knowing your Remote Controller 2
Preparing the axl OneView Remote Controller 3
Charging 3
Operating the Remote Controller 5
Basic Flight Operations 5
Additional Control Buttons 7
Channel Mapping 8
Customizable Buttons 9
Calibrating the Remote Controller 9
axlDOS Operations 10
axl Air Unit 13
Appendix 15

Overview

axl OneView is axldrone's advanced and intelligent remote controller, engineered for professional UAV operations that demand real-time control, high-definition video transmission, and secure connectivity. With an operational range of up to 15 km, axl OneView delivers ultra-low-latency video and command transmission, even in challenging environments.

Designed with a new and improved ergonomic form factor, axl OneView is powered by an advanced processor and seamlessly integrated with axldrone's custom-developed Drone Operating System (axl DOS). This ensures high-performance operation, stable connectivity, and crisp, reliable video output across mission profiles.

The controller features a standalone, rechargeable, and swappable battery pack, enabling extended field operations with minimal downtime and greater operational flexibility.

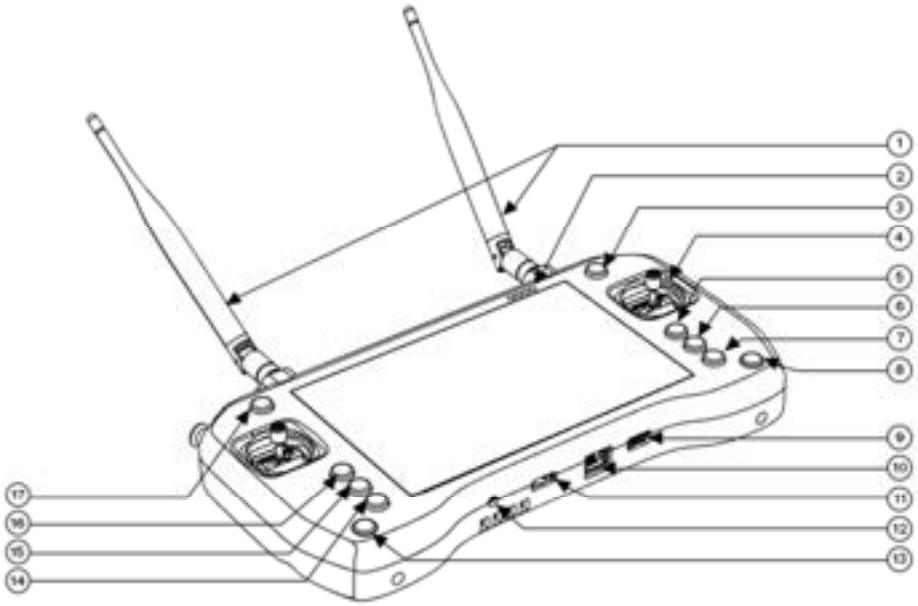
axl OneView supports multiple encrypted communication interfaces, including HDMI, USB, LAN, and AUX, ensuring flexibility in deployment across various mission profiles.

The controller also supports mesh networking, enabling multiple units to interconnect securely, forming an extended, dynamic network. This allows real-time video streaming over the internet and significantly enhances coverage and reliability, making it ideal for large-scale and collaborative drone missions.

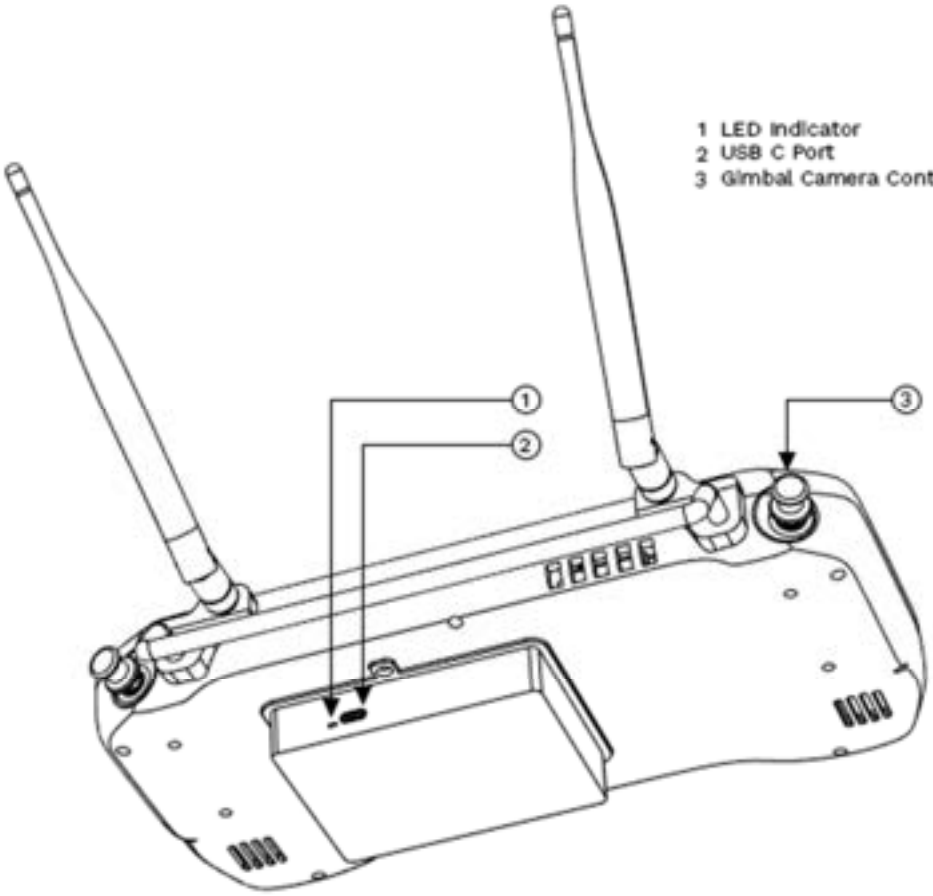
The section describes the features of the remote controller and includes instructions for controlling the aircraft and the camera.

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Knowing your Remote Controller



1 Antenna
2 Power/battery status LED
3 Break Button
4 Control Stick
5 Land Button
6 User Configurable
7 User Configurable
8 Power Button
9 USB
10 LAN
11 HDMI
12 Aux Out
13 RTL
14 Video Capture
15 Image Capture
16 User Configurable
17 Motor Emergency



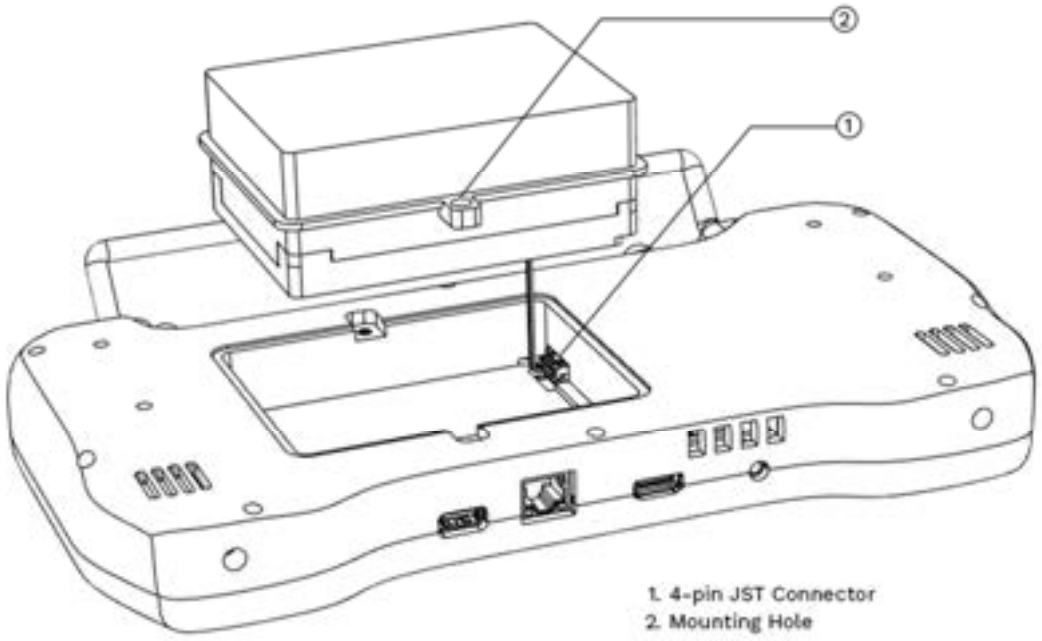
1 LED Indicator
2 USB C Port
3 Gimbal Camera Control

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Preparing the axl OneView Remote Controller

Charging

The axl OneView Remote Controller is powered by a standalone rechargeable battery pack that supports USB Type-C charging. The battery pack may be charged either while connected to the remote control or as a standalone unit when removed.



Usage Instructions

Charging must be performed using a certified and compatible USB Type-C charger. For optimal charging performance, a 45 W fast charger is recommended. Under normal conditions, the typical charging time is approximately 1.5 hours.

Ensure the battery pack is sufficiently charged before each operation. Charging status and battery condition can be monitored using the LED status indicator on the battery pack.

Use only certified charging equipment to prevent overcharging, overheating, or damage to the battery pack. Failure to follow proper charging procedures may result in reduced battery performance, fire hazards, or personal injury.

Always adhere to the charging and safety guidelines specified in this manual.

LED Indicator

The battery pack has an LED indicator to indicate charging and battery status.

LED Status	Description
Green	Battery charging
Red	Battery low
Off	Battery fully charged or discharging

Storage and Handling

- Store the battery pack in a cool, dry location when not in use.
- Avoid exposure to excessive heat, moisture, or direct sunlight.
- Do not store the battery pack in a fully discharged state for extended periods.

Installing the Battery Pack

1. Align the 4-pin JST female power connector on the battery pack with the corresponding male connector on the remote controller.
2. Gently plug in the connector until fully seated.
3. Secure the battery pack using the two retaining screws to ensure it is firmly attached.
4. Verify the battery pack is properly seated and the connector is fully engaged before powering ON the remote controller.

CAUTION: Do not force the connector. Improper installation may cause damage to the battery or the remote controller.

Uninstalling the Battery Pack

1. Power OFF the remote controller before removing the battery pack.
2. Unscrew the two retaining screws securing the battery pack.
3. Carefully disconnect the 4-pin JST connector by gently pulling it from the remote controller.

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4. Remove the battery pack and charge or store it in a cool, dry place.

CAUTION: Do not remove the battery pack while the remote controller is powered ON.
Do not pull the connector forcefully.

Power On/Off
Press the Power Button once to switch ON the remote controller.
To power OFF the remote controller, navigate to the Shut Down menu and select Power Off.
Press and hold the Power Button to perform a forced shutdown of the remote controller.

- *Note: Forced shutdown is not recommended and should be used only if the system is unresponsive.*

Ensure the drone and remote controller are both powered on before initiating flight.

Operating the Remote Controller

Basic Flight Operations

Arming the Drone



To **ARM** the drone and prepare for takeoff, push the **Left Stick** right bottom. This will initialize the motors and set the drone into a ready-to-fly state.

Disarming the Drone

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To **DISARM** the drone and shut down the motors safely, push the **Left stick** left bottom. Always disarm after landing or during extended pauses in operation.

Motor Emergency

In the event of a critical situation, press the **Motor Emergency** button. This will immediately halt all motors, overriding flight controls. Use it only when necessary to prevent damage or injury.

⚠ Stopping the motors mid-flight will result in an immediate crash and potential damage to the aircraft. Operate with extreme caution and ensure all flight commands are executed intentionally.

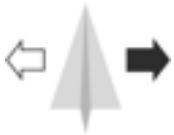
Controlling the Aircraft

The Control Sticks of the remote controller can be used to control the aircraft movements.

The below is how to use the control sticks in Manual Mode.

Control Stick	Aircraft	Remarks
		**Throttle Stick** • Push the stick up to ascend and down to descend. • The further the stick is moved from the center, the faster the aircraft ascends or descends. • Apply gentle input during take-off to avoid sudden altitude changes.

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		**Yaw Stick** • Push the stick left or right to rotate the aircraft. • The rotation speed increases the further the stick is moved from the center.
		**Pitch Stick** • Push the stick forward to move the aircraft ahead and backward to reverse. • Movement speed increases with greater displacement from the center.
		**Roll Stick** • Push the stick right or left to move the aircraft horizontally move right or left. • Movement speed increases with greater displacement from the center.

Additional Control Buttons

Break Button

- Press the Break Button to make the drone immediately pause and hover in its current position.
- This is useful for quick stops during autonomous or manual flights.

Land Button

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- Activating the Land Button will command the drone to descend and land at its current position, regardless of takeoff location.
- Ideal for controlled emergency landings or quick mission termination.

RTL (Return-to-Launch) Button

- The RTL Button commands the drone to return to its takeoff location and land safely.
- Useful in low battery, lost signal, or automated mission completion scenarios.

Note: The features and functions described above are designed exclusively for use with axldrone components, systems, and compatible firmware. Full functionality may not be available or supported when used with third-party hardware or software. For optimal performance and safety, always operate within the axldrone ecosystem.

Channel Mapping



Channel No.	Physical Channel Type	Default Mapping
1	Roll	1000 - 2000 PWM
2	Pitch	1000 - 2000 PWM
3	Throttle	1000 - 2000 PWM
4	Yaw	1000 - 2000 PWM
5	C2	1000 - 2000 PWM (Push high and push Low)

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6	Video record	1000 - 2000 PWM (Push high and push Low)
7	RTL	1000 - 2000 PWM (Push high and push Low)
8	Right Thumbwheel	1000 - 2000 PWM
9	Left Thumbwheel	1000 - 2000 PWM
10	Camera Click	1000 - 2000 PWM (Push high, Release Low)
11	Break	1000 - 2000 PWM (Push high and push Low)
12	Nil	-
13	Nil	-
14	Land	1000 - 2000 PWM (Push high and push Low)
15	C1	1000 - 2000 PWM (Push high and push Low)
16	Pause	1000 - 2000 PWM (Push high and push Low)

Customizable Buttons

User Configurable Button

- This button is unassigned by default.
- Users can log into the QGroundControl (QGC) interface and assign a custom function such as camera control, flight mode switching, or payload activation based on mission needs.

Calibrating the Remote Controller

The axl OneView remote controller supports joystick calibration to ensure accurate and responsive flight control.

To calibrate the remote controller:

1. Press and hold the C1 button.
2. Power on the remote controller.
3. Hold the C1 Button until the display is turned on.
4. This will initiate the joystick calibration process automatically.

axlDOS Operations

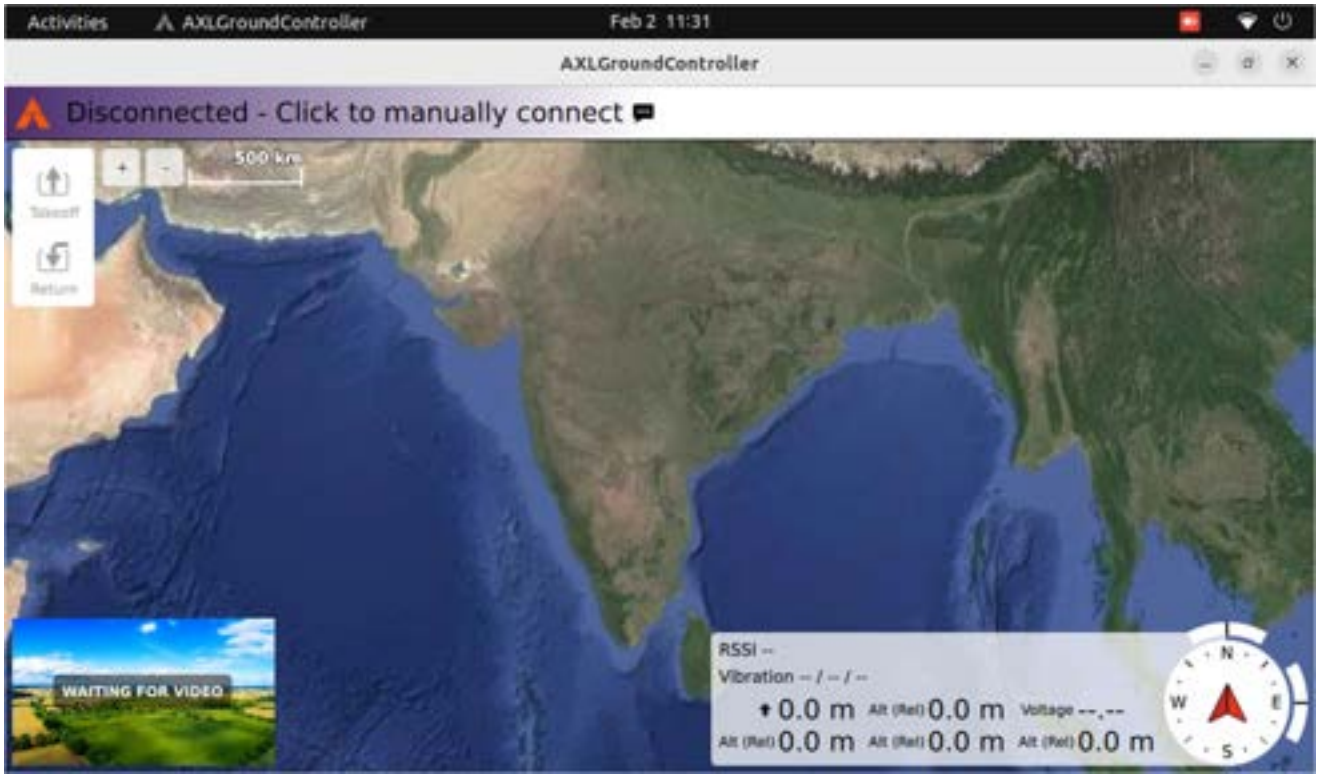
Home: The right-hand side of the touchscreen displays the volume, battery level of the remote controller, Wi-Fi signal and Date & Time. Some of the apps are already installed by default such as Logs, axlGC, Gallery and Settings. Settings include Network & Internet, Date & Time and about. Users can get an overview of the options below.



axl Logs: Stores detailed flight data, including Total Distance, Total Flight Time, Total Flights,Total Flights, date, distance, altitude, duration, and battery consumed. These records help users review flight performance and analyze any data necessary to review.

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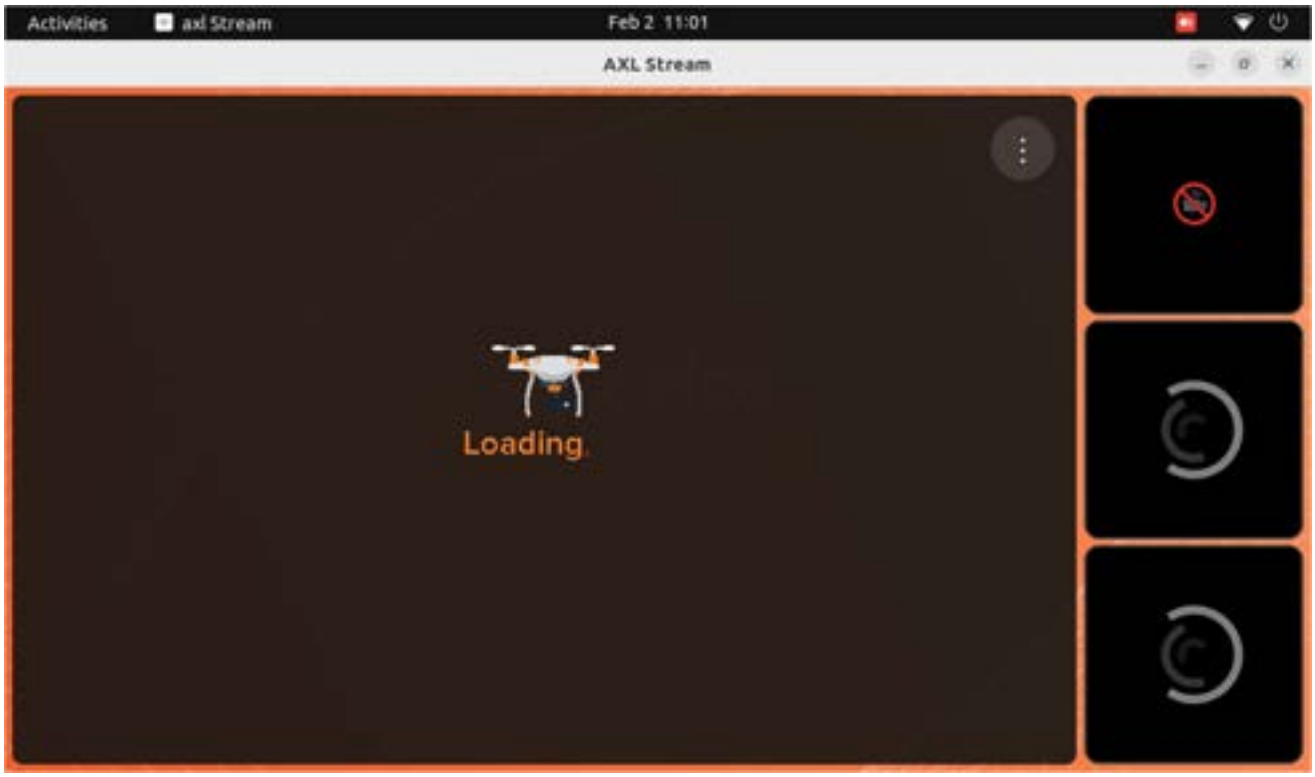
axlGCRun: Primary interface for real-time drone monitoring and mission planning. It supports live telemetry, waypoint navigation, flight mode switching, and provides visual feedback on drone health and positioning via a map-based interface.



axlGCSetup: Handles initial drone configuration and commissioning. Allows users to set up vehicle parameters, calibrate sensors, define safety limits, and configure failsafe behaviors to ensure safe and reliable flight operations before deployment.

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axl Stream: Provides a unified interface to view and monitor multiple drone video feeds simultaneously. Enables real-time situational awareness, centralized monitoring, and efficient coordination for multi-drone operations.



axl Video: Displays all captured media—photos and videos. Users can quickly preview, manage, or export files to external storage for post-processing or analysis.

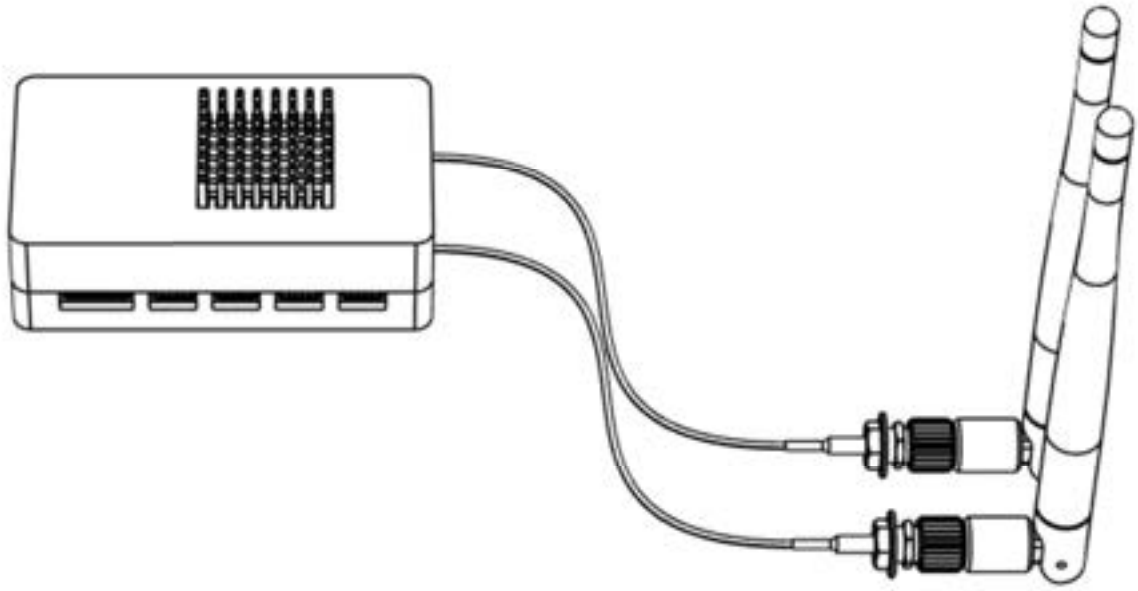
Settings: Module allows users to configure Network and Internet, Time & Date Settings of the remote controller.

Note: HDMI settings: The touch screen can be shared to a display after connecting the HDMI port of the remote controller.

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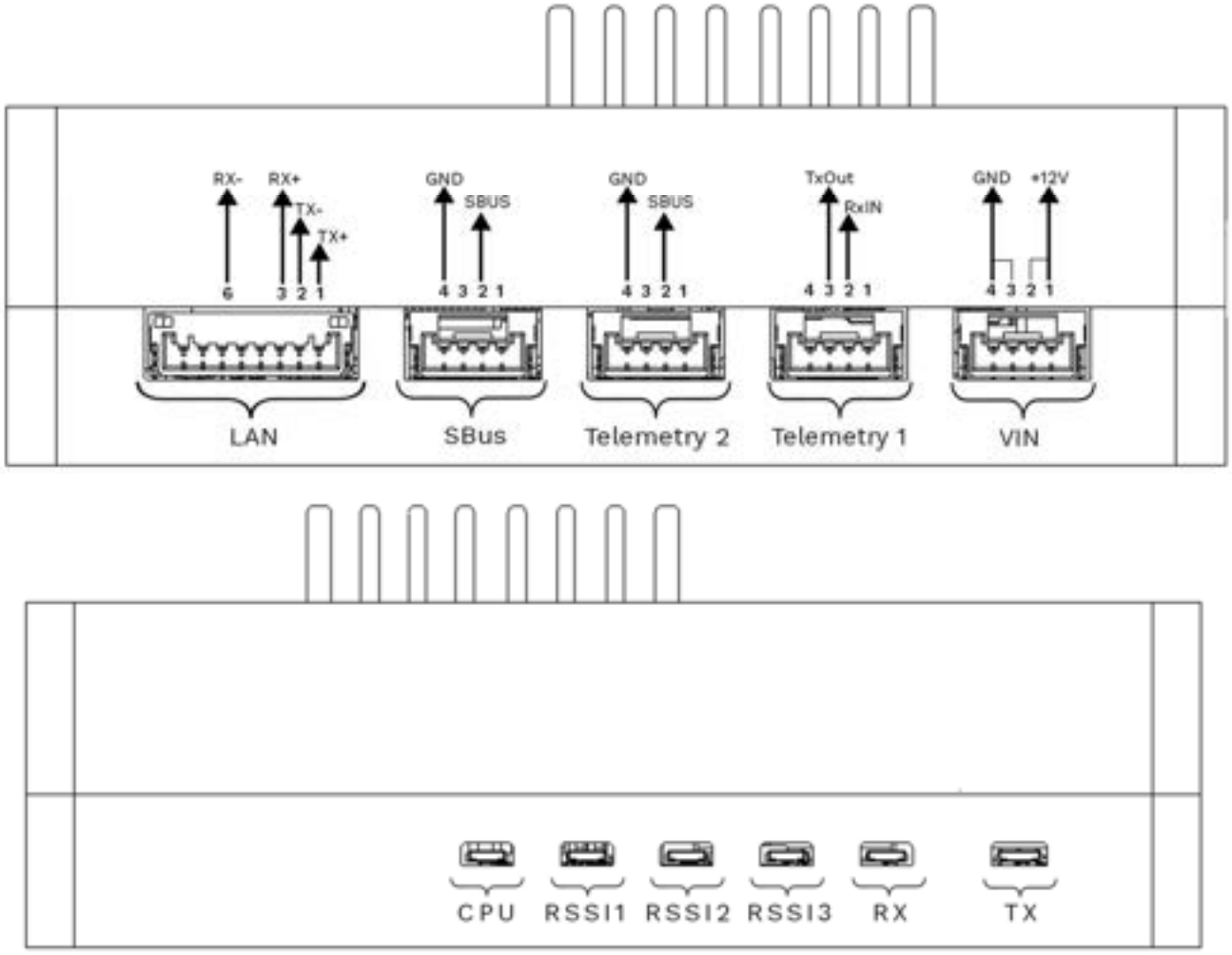
axl Air Unit

The axl AirUnit is a compact, high-performance onboard module developed by axldrone India Pvt. Ltd., serving as the central hub for flight control, video transmission, telemetry, and data processing in axldrone UAV systems. Engineered for reliability and modularity, it ensures seamless communication between the drone, ground control station, and payload systems.



1. Video input: Ethernet
2. Working voltage: 12V
3. Power consumption: 2W
4. Video storage bitrate: 12Mbps
5. Video file format: H.265
6. Working Temperature: -10 to 50deg cel
7. RTSP link: rtsp://192.168.144.25:8554/main.264 (example)

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Appendix

Controller

Screen:	7 Inch LCD touch screen, 1024 x 600
Radio Control Range	10 KM
Antenna	Dual Antenna 2.4Ghz
Battery Life	2.5 Hours
Extendibility:	N+1 configuration and real time broadcasting
Storage:	64GB
Wireless Communication:	Bluetooth, WIFI,
External Interface:	USB, HDMI, LAN, AUX Out
Battery Capacity:	3000 mAh
Working Frequency	2.4GHZ
RF Power	1W, 30dBM
Channel:	16
Processor:	Intel N100
Operating System	axlDOS
Size	300mm(L) * 192mm(W) * 68.2mm(H)
Weight (Battery & Antenna included)	Approx. 1120g
Operating Temperature (°C)	-10°~55°C

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Air Unit

Case Material:	ABS
Weight (antenna included):	Approx. 120g
Signal Bandwidth:	4MHz
Power Consumption:	The average power consumption does not exceed 3W
Power Input:	Recommended supply voltage 12V (Avoid sharing BEC with servos)
Air Unit Control Output:	SBUS, UART, LAN
Antenna:	Dual Fixed Patch Antenna
Dimensions	85mm(L) * 45mm(W) * 30mm (H)

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Visit Our website

Feel free to connect

Kalamassery, Kochi,
Kerala, India – 682030
P : +91 484 299 3399,
+91 949 771 7654
E : info@axldrone.com

C5 UL Cyber Park,
Special Economic Zone
Calicut, India – 673016
P : +91 9645 426 414
E : info@axldrone.com

1441 Broadway,
#5, New York, NY 10018
P : +(646) 260-6311
E : info@axldrone.com