AirLink Outdoor AP Wi-Fi HaLow ODU03-AH

User Manual – Version 1.1

Product Overview

The AirLink Outdoor AP Wi-Fi HaLow ODU03-AH is a high-performance, long-range wireless access point utilizing IEEE 802.11ah protocol (Wi-Fi HaLow). This product is designed for industrial control, remote monitoring, and outdoor applications, offering exceptional coverage, stability, and low power consumption.

Models and Components

The system consists of two modules:

- **HaLow Transmitter AP**: Connects to your router and transmits the Wi-Fi signal
- **HaLow Extender** (may be integrated with cameras): Receives the signal and creates a Wi-Fi network at the remote location

Package Contents

- 1 × HaLow Transmitter AP
- 1 × Ethernet Cable (1.5m)
- 1 × Mounting Kit
- 1 × 12V Power Adaptor
- 1 × PoE passive Injector

Hardware Specifications

Item	Specification
Dimensions	160 × 110 × 60 mm
Weight	650g (without antenna)
Ethernet Port	10/100 Mbps
Serial Port	TTL level
Baud Rate	115200 (default)
Power Input	DC 12V/1A
Max Current	0.6A
Avg Power Consumption	5W
Operating Temperature	-30°C to 80°C
Storage Temperature	-40°C to 90°C
Operating Humidity	10% – 90% RH (non-condensing)
Storage Humidity	5% – 95% RH (non-condensing)
Enclosure Rating	IP67 (dust/waterproof)
Mounting Options	Pole mount or wall mount

Wireless Specifications

Item	Specification
Wireless Protocol	IEEE 802.11ah (Wi-Fi HaLow)
Frequency Range	902 MHz – 928 MHz
Bandwidth	8 MHz
Max Data Rate	16 Mbps
Receiver Sensitivity	Up to -105 dBm (MCS dependent)
Modulation	BPSK, QPSK, QAM16, QAM64
Transmit Power	33 dBm (2W)
Range (LOS)	Up to 3 km with 2 dBi omni antenna
Range (NLOS)	Up to 500 m
Max Nodes Supported	30 devices
Security	WPA2-PSK, AES encryption
Network Modes	AP mode, Bridge mode, Relay mode

Installation Guide

Pre-Installation Preparation

1. Confirm all accessories are included in the package
2. Prepare installation tools (screwdriver, drill, wrench)
3. Select appropriate installation locations (ensure line-of-sight if possible)

Installation Steps

For HaLow Transmitter AP:

1. **Mount the bracket**: Secure the mounting bracket to a wall or pole using the provided screws
2. **Connect the antenna**: Attach the omni-directional antenna or high-gain external antenna to the N-female connector
3. **Connect to router**: Use an Ethernet cable to connect the Transmitter to your router's LAN port
4. **Connect power**: Attach the DC 12V/1A power adapter to the power input port
5. **Power on**: Once powered, the device will perform a self-check and then remain on continuously when operational.

For HaLow Extender (may be integrated with cameras):

1. **Mount the bracket**: Install the mounting bracket at the desired location
2. **Install at right place**: Attach the camera or extender antenna
3. **Connect power**: Attach the DC 12V/1A-2A power adapter to the power input port
4. **Power on**: The POW light will turn on. The SYNC light should illuminate. If cameras are integrated, you should be able to view their live stream via the web interface, mobile app, RTSP or RTMP

5. **Adjust position**: If camera stream cannot be viewed, reposition to improve signal reception and ensure a stable connection.

Weatherproofing

1. Ensure all connections are properly sealed with waterproof tape or sealant
2. Use appropriate grounding measures to protect against lightning strikes
3. Secure all cables to prevent strain on connectors

Setup & Configuration

Initial Connection

1. **Power on the devices**: Both the Transmitter and Extender should be powered on
2. **HaLow Transmitter AP connection**: Simply plug the HaLow AP device into a local Access Point or switch. The HaLow cameras will automatically connect and begin transmitting data without additional configuration.
3. **Bandwidth Optimization**: If bandwidth appears insufficient for your application, consider adjusting the camera's video bitrate settings. Lowering the bitrate can help reduce bandwidth usage and improve transmission stability over long distances.

Common Configuration Modes

Video Monitoring Application

1. Connect the HaLow Transmitter to your NVR or PC
2. Configure the HaLow Extender or integrated camera
3. Enable video stream optimization features
4. RTSP Stream URLs

- ✧ Main Stream (High Resolution): rtsp://username:password@x.x.x.x:554/stream0
- ✧ Sub Stream (Low Resolution): rtsp://username:password@x.x.x.x:554/stream1
- ✧ Default login: Username: admin Password: 123456
- ✧ Replace x.x.x.x with the IP address of the camera

Application Scenarios

Long-Distance Camera Transmission

- **Scenario**: Deploy surveillance cameras in large outdoor areas (farms, construction sites, parks)
- **Benefits**: Provides stable video transmission up to 3 km, reduces wiring costs
- **Recommended Configuration**: AP mode, using directional antennas for enhanced range and stability
- **Case Study**: A large solar farm implemented this product to achieve wireless video monitoring across a 2 square kilometer area

Drone Image Transmission

- **Scenario**: Provide long-range, stable image and data transmission for UAVs
- **Benefits**: Low latency, high stability, and long-range characteristics suitable for drone applications
- **Recommended Configuration**: Bridge mode with high-gain antennas
- **Case Study**: A surveying company used this product on agricultural inspection drones to achieve real-time HD image transmission within a 2 km range

Industrial Control

- **Scenario**: Wireless monitoring and control of equipment in factory, warehouse, or energy station environments

- **Benefits**: Strong obstacle penetration capabilities, maintains stable connections in complex industrial environments
- **Recommended Configuration**: AP mode with power output adjusted to the environment
- **Case Study**: A petrochemical company implemented this product to network and centrally monitor 50 distributed control devices

Smart Agriculture

- **Scenario**: Wireless connectivity for sensors, irrigation equipment, and monitoring systems in large agricultural fields
- **Benefits**: Ultra-long coverage range for large areas; low power consumption ideal for long-term field operation
- **Recommended Configuration**: AP mode with omni-directional antennas for comprehensive coverage
- **Case Study**: A smart farm connected 15 distributed temperature/humidity sensors and 8 automatic irrigation controllers using this product, enabling intelligent management of 500 acres of farmland

Troubleshooting

Device Won't Power On

- Check if the power adapter is correctly connected
- Measure the power output voltage (should be DC 12V)
- Check if the power cable is damaged

Cannot Connect to Device

- Ensure the network cable is securely and properly connected.
- Check that the device is mounted at an appropriate height and in a suitable position for optimal signal reception.
- Check if the antenna is properly installed and tightened

- Adjust antenna direction or height
- Eliminate nearby interference sources

Slow Transmission Speed

- Check if the distance between devices exceeds the recommended range
- Verify there are no obstacles affecting signal transmission
- Check wireless signal strength and quality
- Replace with higher gain antennas or adjust antenna direction
- If bandwidth appears insufficient for your application, consider adjusting the camera's video bitrate settings. Lowering the bitrate can help reduce bandwidth usage and improve transmission stability over long distances.
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Safety Precautions

⚠ Security Tip: Change default login credentials after first use.

Installation Safety

- Use safety lines and protective measures when installing at heights
- Avoid outdoor installation during adverse weather conditions
- Ensure secure mounting to prevent device from falling

Electrical Safety

- Use the original power adapter or one that meets specifications
- Avoid operating power equipment in wet environments
- Ensure all connections are properly weatherproofed

Technical Support

Contact Information

- **Technical Support Email**: info@airlink-ilife.com
- **Customer Service Phone**: +886-4-24221524
- **Official Website**: www.airlink-ilife.com

Additional Resources

- On-site technical support and customized solutions available

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