

# AgEris Gateway HATv3 User Manual & Technical Specifications



**Manufactured by:** Next Season Systems LLC (USA)

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# AgEris Gateway HATv3 - User Manual & Technical Specifications

**Model:** HATv3

**Brand:** AgEris

**Manufactured by:** Next Season Systems LLC (USA)

**E.I.N.:** 47-4089977

**Made in:** China

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## 1. Introduction

Thank you for choosing the **AgEris Gateway HATv3**. This device has been designed to work exclusively with **AgEris**-brand data loggers and communication devices developed by **Next Season Systems LLC**. It serves as a reliable and secure communication gateway for automatically transmitting data from AgEris-enabled devices via LoRa license-free RF (915MHz USA/868MHz EU) to cloud-based databases over Ethernet or GSM/GPRS connections.

This **User Manual** provides detailed instructions for setting up, installing, and using the gateway. Please read it carefully to ensure proper operation and safe handling of the device.

The **AgEris Gateway HATv3** is an after-factory, non-user-programmed, pre-programmed device. It is designed to be programmed by the country distributor based on the location settings. This manual provides general information on the device's features, setup, and use.

The **AgEris Gateway HATv3** is shipped disassembled to ensure safe transportation and minimize the risk of damage during shipping. As such, assembly is required before the device can be used. Detailed instructions for both assembly and programming are provided exclusively to authorized distributors.

Please note that the images and illustrations in this manual are provided for reference purposes only. The actual product may vary in appearance, including color and finish, depending on the model or production batch.

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## 2. System Overview

The **AgEris Gateway HATv3** is a communication device designed to receive and forward data from **AgEris**-enabled data loggers. It operates in **Receiving Mode** at all times, except for brief moments when it temporarily switches to **Transmission Mode** (for milliseconds) to send a confirmation message back to the device that initiated the communication.

The gateway is developed using the **HATv3 hardware platform** and is compatible with **Raspberry Pi 3 Model B+** or **Raspberry Pi 4 Model B** (not included in the package). It communicates on **915 MHz (USA)** or **868 MHz (EU)** **license-free** frequencies and is exclusively tuned to receive **AgEris** RF signals, while ignoring all other RF signals.

Once the gateway receives an **AgEris** signal, it sends a short confirmation message back to the transmitter to ensure the data was successfully received. Afterward, it processes the information and forwards it to specialized databases in the cloud over either **Ethernet** or **GSM/GPRS**.

### Key Features:

- **Receiving Mode:** Operates in **Receiving Mode** at all times, with brief transmission for confirmation.
  - **Frequency:** 915 MHz (USA) or 868 MHz (EU)
  - **Connectivity:** Ethernet and GSM/GPRS (SIM card required)
  - **Transmission Confirmation:** Sends a short confirmation code back to the transmitter.
  - **Protection Grade:** IP65 (weatherproof housing)
  - **Power Supply:** AC 110-240V, 50/60Hz, with 5V DC Adapter (American/European plug)
  - **Housing:** IP65-rated ABS plastic enclosure to protect the internal electronics.
  - **Heat Dissipation Module:** Three Two-part aluminum construction to ensure proper cooling.
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### 3. Important Notices

- **Assembly Required:**  
The **AgEris Gateway HATv3** is shipped disassembled to ensure safe transportation and minimize the risk of damage. **Assembly** is required before the device can be used. Detailed instructions for both **assembly** and **programming** are provided exclusively to **authorized distributors**.
  - **Images for Reference Only:**  
The images and illustrations in this manual are provided for **reference purposes only**. The actual product may vary in appearance, including color and finish, depending on the model or production batch.
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### 4. Features and Specifications

#### General Features:

- **Designed for AgEris Data Loggers:** Exclusively receives signals from AgEris devices.
  - **Transmission Confirmation:** Sends a brief confirmation code to the transmitting device.
  - **Automatic Operation:** Continuously in **Receiving Mode**, only briefly switches to **Transmission Mode** for confirmation.
  - **Connectivity:** Ethernet and GSM/GPRS communication.
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### 5. Hardware Components

#### Included Components:

1. **Gateway Enclosure:**
  - ABS housing, protection grade **IP65**
  - Dimensions: 190mm x 89mm x 65mm
2. **Heat Dissipation Modules:**
  - 3 x 2-part aluminum modules for heat management
3. **On/Off Button:**
  - Located on the enclosure for easy power control
4. **Wall Mount Connector (M20):**
  - **IP65** protection for **Ethernet** connection
5. **MicroSD Card:**
  - 32GB card (not included) pre-installed with the **Raspberry Pi OS** and AgEris communication protocols

## Communication Modules:

- **SX1276 LoRa Module:**
    - Long-range RF Transmitter/Receiver (915 MHz USA / 868 MHz EU)
    - Antenna: EM-915-16.5 Flexible SMA antenna (16.5 cm, 3 dBi gain)
  - **SIM800L GSM/GPRS Module:**
    - For GSM communication via SIM card (not included)
    - Antenna: Rubber SMA antenna (5.0 cm, 2 dBi gain)
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## 6. Assembly Instructions

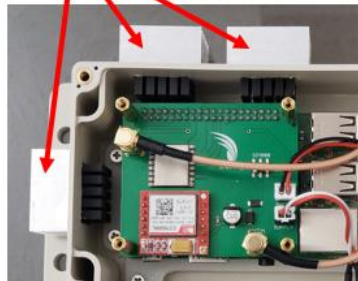
### Step 1: Unbox the Components

- Verify that all components listed in the "Hardware Components" section are included.

### Step 2: Attach the Heat Dissipation Modules

- Secure the aluminum heat dissipation modules to the designated slots on the enclosure to ensure optimal cooling.

Heat Dissipation  
Modules



**Figure 1:** Aluminum heat dissipation modules installed

### Step 3: Connect the Raspberry Pi

- Insert the **Raspberry Pi 3** or **Raspberry Pi 4** (sold separately) into the designated slot inside the enclosure.
- Connect the **MicroSD card** to the Raspberry Pi.

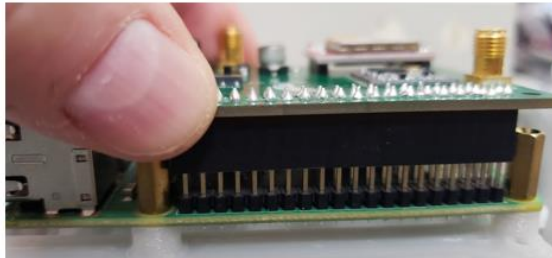
Micro SD card



**Figure 2:** Installation of the Raspberry Pi (not included) on the device chassis and positioning of the Micro SD card.

#### Step 4: Connect the Printed Circuit Board (PCB) HATv3

- Carefully place the **AgEris Gateway HATv3** PCB on top of the Raspberry Pi, ensuring the connectors are aligned.



**Figure 3:** Mounting the HATv3 PCB

### Step 5: Connect the Antennas

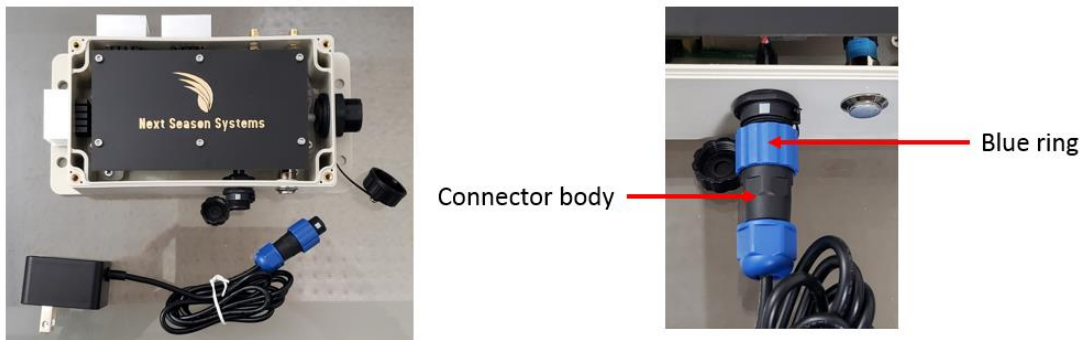
- Attach the **LoRa Antenna** and **GSM Antenna** to their respective SMA connectors.



**Figure 4:** Mounting antennas

### Step 6: Power Connection

- Plug the **AC power adapter** into an appropriate socket (110-240V AC) and connect it to the **M13 wall mount connector**.

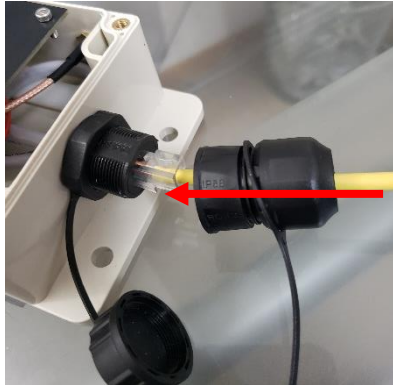


**Figure 5:** Mounting power adapter

## 7. Installation and Setup

### Step 1: Network Setup

- **Ethernet Connection:** Plug the Ethernet cable into the **M20 wall mount connector** and connect it to your network router.



**Figure 6:** Mounting Ethernet

- **GSM Setup:** Insert a **SIM card** (not included) into the **SIM800L module** for GSM/GPRS communication.

### Step 2: Power On the Gateway

- Press the **On/Off button** to power on the gateway.
- Verify that the **status LED** lights up, indicating that the device is powered and ready for use.

### Step 3: Distributor Programming

- The gateway comes pre-programmed with basic settings. However, the country distributor will need to program the device based on local network configurations. Please refer to your distributor for programming instructions. Detailed instructions for both assembly and programming are provided exclusively to authorized distributors.
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## 8. Operation

Once the **AgEris Gateway HATv3** is fully assembled and powered on, it will:

1. **Receive signals** from **AgEris** data loggers. The AgEris Gateway is continuously in **Receiving Mode**.
2. **Send a confirmation message** for a few milliseconds back to the transmitting device only when a signal of an AgEris Data Logger is received.
3. **Forward the received data** to the cloud via Ethernet or GSM/GPRS.

The gateway operates automatically once programmed by the distributor. It remains in **Receiving Mode** at all times, except for brief transmission intervals for sending confirmation codes.

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## 9. Troubleshooting

If the gateway is not functioning correctly, consider the following:

- **No Power:** Check the power supply connection and ensure the adapter is properly plugged in.
  - **No Communication:** Verify that the antenna connections are secure, and that the device is set to the correct frequency (915 MHz or 868 MHz).
  - **SIM Card Issues:** Ensure that the **SIM card** is correctly installed and activated for GSM/GPRS communication.
  - **Clean the enclosure:** Wipe the ABS enclosure with a damp cloth to remove dirt and dust.
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## 10. Technical Specifications

Parameter	Value
<b>Adapter Charger</b>	AC 110-240V 50/60Hz to 5V 3A M13 connector. ON/OFF Button EU and US Plug Wire length to 2m
<b>Housing Material</b>	ABS
<b>Housing Dimensions</b>	190mm x 89mm x 65mm
<b>Protection Grade</b>	IP65 (Housing & Connectors)
<b>Enclosure Dimensions</b>	190mm x 89mm x 65mm
<b>Heat Dissipation Module</b>	Aluminum
<b>Operating Temperature</b>	-30°C to +50°C
<b>Storage Temperature</b>	-40°C to +60°C
<b>Humidity</b>	0% – 100% RH
<b>Connectivity</b>	Ethernet & GSM/GPRS (SIM card required)
<b>RF Module</b>	SX1276 LoRa Module
<b>RF Operating Power</b>	< 1 W
<b>LoRa Antenna</b>	Brand Name: E-COMM Model EM-915-16.5 Flexible Antenna SMA male connector. Frequency 915MHz. Dimensions: 16.5cm x Ø1.3cm. Impedance: 50 Ohm. VSWR: 1.5. Gain: 3dbi
<b>GMS GPRS Module</b>	SIM800L
<b>GSM GPRS Antenna</b>	Brand Name: Taidacent Model Tdgsantennaipex Antenna 2G/3G/4G GSM GPRS RF Rubber Antenna SMA male connector Dimensions: 5.0cm x Ø 0.8cm Impedance 50 Ohm VSWR 1.8. Gain 2dbi

## 11. Warranty and Support

If you experience any issues with your **AgEris Gateway HATv3**, please contact **Next Season Systems LLC** at the support details provided on our website or reach out to your local distributor for assistance.

For technical support or service inquiries, please contact:

- **Address:** 8214 Ironclad CT, Gaithersburg, MD 20877, USA
  - **Email:** [contact@nextseasonsystems.com](mailto:contact@nextseasonsystems.com)
  - **Phone:** +1 (402) 304-8281
  - **Webpage:** <https://nxtseasys.com/>
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