AgEris Data Logger WSv8
User Manual & Technical Specifications

Manufactured by: Next Season Systems LLC (USA)

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Model: WSv8
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 Data Logger**! This device has been designed and manufactured to provide reliable and accurate data collection and transmission for a variety of applications. The **WSv8** platform is engineered for optimal performance in rugged conditions, ensuring that your data is captured and transmitted safely even in challenging environments.

This User Manual provides comprehensive instructions for installation, operation, and maintenance of the **AgEris Data Logger**.

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

The **AgEris Data Logger** 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 Data Logger** utilizes the **WSv8** hardware platform, which has been developed to cater to various sensing and data transmission needs. The device is compact, rugged, and reliable, offering an efficient data logging solution for both industrial and scientific applications.

Key components of the system include:

- **Housing**: IP65-rated ABS plastic enclosure to protect the internal electronics.
- **Heat Dissipation Module**: Two-part aluminum construction to ensure proper cooling.
- **Data Backup**: A MicroSD card for local storage and backup in case of transmission issues.
- **Power Supply**: Operates on a 6V DC power supply.
- **Backup Battery**: A CR1220 button battery (not included) to maintain basic system functions during power outages.

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3. Key Features

- **Compact and rugged design**: Protected in an ABS box with IP65 rating.
- **Wireless Data Transmission**: RF transmission at license-free 915 MHz (USA) or 868 MHz (Europe) using LoRa technology.
- **Flexible Sensor Connectivity**: Supports various sensor types including pulse counters, analog inputs, RS232, and I^2C communication.
- **Data Backup**: 32GB MicroSD card for non-volatile memory.
- **Wide Operating Temperature Range**: Operates from -30°C to +50°C, with storage capabilities from -40°C to +60°C.
- **Long-range Communication**: Utilizes SX1276 LoRa module for reliable wireless communication.

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4. Technical Specifications

Parameter	Value
Power Supply	6V DC
Flash Memory	256 KB
Volatile Memory (SRAM)	48 KB
Sensing Frequency	15 seconds
Transmission Frequency	915 MHz (USA), 868 MHz (EU)
Transmission Interval	Every 5 minutes
Working Temperature	-30 °C to +50 °C
Storage Temperature	-40 °C to +60 °C
Working Humidity	0 – 100%
Protection Grade	IP65
Housing Material	ABS
Housing Dimensions	190mm x 89mm x 65mm
Heat Dissipation Module	Aluminum
Backup Battery	CR1220 (not included)
MicroSD Card Capacity	32 GB
Antenna	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
RF Module	SX1276 LoRa Module
RF Operating Power	< 1 W

5. Getting Started

Powering the Device

1. **Insert the 6V DC power supply** into the power input connector of the device. Ensure that the polarity is correct.
2. Use the **On/Off button** to power on the device.
3. Once powered on, the device will begin its sensing operations according to the predefined programming by the distributor.

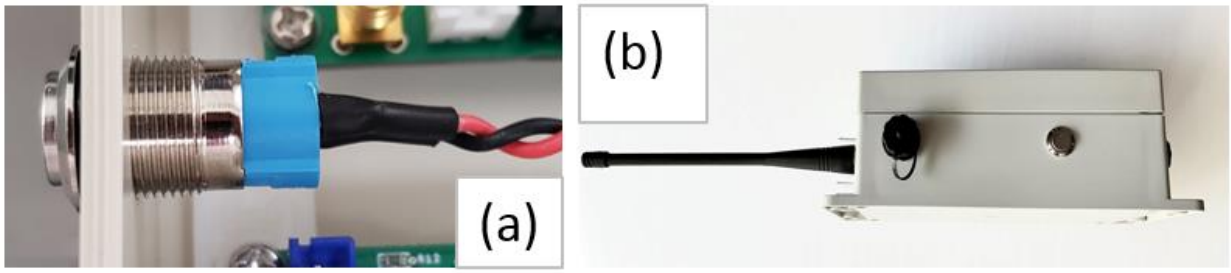

Figure 1: A close-up image of the device's On/Off switch. (a) Installation, and (b) installed

Inserting the MicroSD Card

1. Locate the **MicroSD card slot** on the side or bottom of the device (depending on the model configuration).
2. Insert the **MicroSD card** into the slot until it clicks into place.
3. The MicroSD card is used for storing data in case of transmission failures.

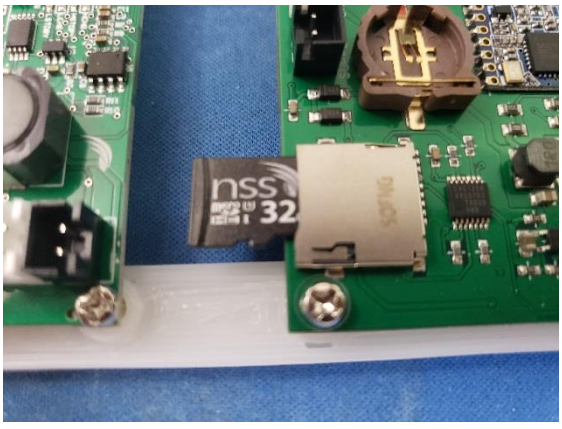

Figure 2: Detail showing the MicroSD card slot and how to insert the card.

6. Sensor Connections

The **AgEris Data Logger** supports several sensor connection types, allowing you to customize your setup according to the required measurements.

- **Pulse Counter Connector (1)**: For pulse-based sensors.
- **Analog 3V Input Connectors (3)**: For analog sensors requiring 3V input.
- **I²C Communication Connectors (2)**: For devices using the I²C communication protocol.
- **RS232 5V Communication Connector (1)**: For devices using RS232 communication.

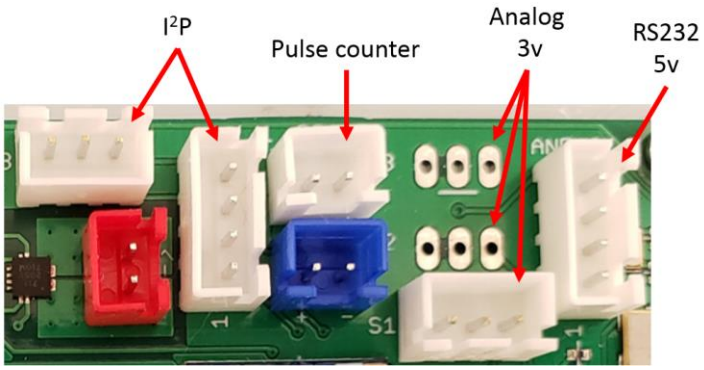

Figure 3: A labeled picture showing the location of each sensor connector on the device.

7. Communications

The **AgEris Data Logger** utilizes a **SX1276 LoRa module** for long-range wireless communication. This module operates on the license-free **915 MHz frequency** in North America and the **868 MHz frequency** in Europe.

Antenna

The device comes with an **EM-915-16.5 flexible antenna** with a **SMA male connector**. The antenna is tuned to the frequency (915 MHz or 868 MHz depending on the region) and is designed to provide optimal range and data transmission reliability.

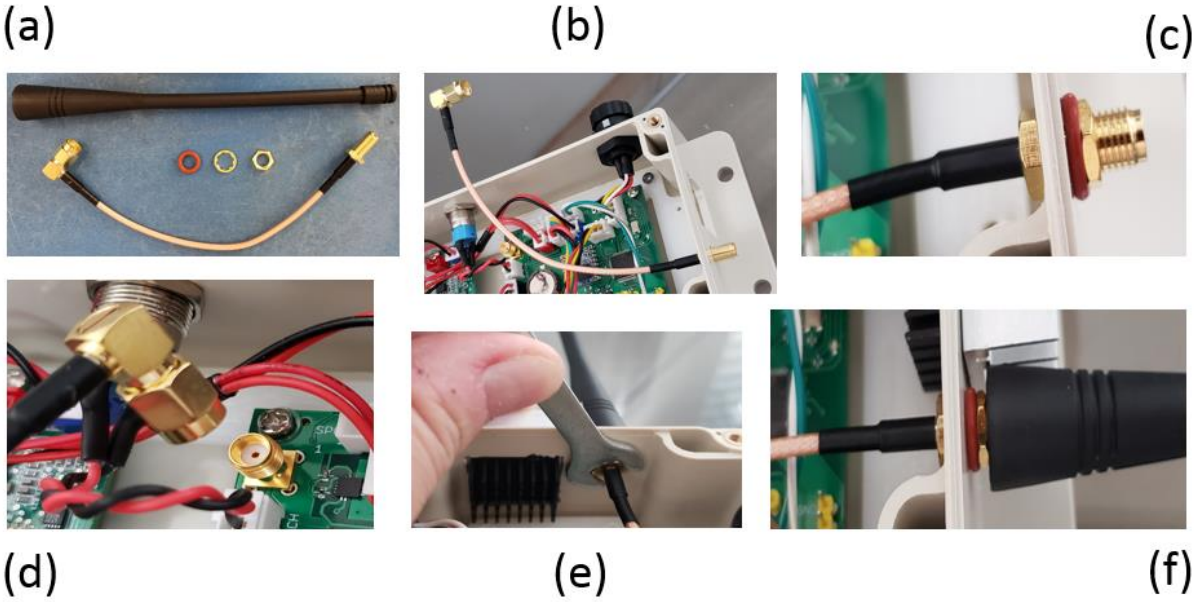

Figure 4: Image of the antenna and its SMA connector, with instructions for attaching it to the device. (a) pieces, (b) and (c) installation of SMA male connector in the fuselage, (d) Installation of the SMA male connector on the PCB, (e) and (f) Antenna installation.

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8. Operating Conditions

Ensure that the device operates within the following environmental conditions:

- **Temperature**: The device can function in temperatures ranging from -30°C to +50°C. However, to ensure longevity and optimal performance, avoid exposing the device to extreme temperature fluctuations.
- **Humidity**: The device is designed to work in environments with **0 – 100% relative humidity**.
- **Storage**: For storage, keep the device in a dry place with temperatures between -40°C to +60°C.

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9. Maintenance and Troubleshooting

The **AgEris Data Logger** is designed for minimal maintenance. However, to ensure smooth operation, follow these guidelines:

- **Regularly check the MicroSD card** to ensure it has adequate space for data storage.
- **Ensure the antenna** is securely attached and positioned for optimal signal reception.
- **Clean the enclosure**: Wipe the ABS enclosure with a damp cloth to remove dirt and dust.

Common Issues

- **Device Not Powering On**: Ensure the power supply is properly connected and working. Check the CR1220 backup battery.
- **Data Transmission Issues**: Check the antenna connection and confirm that the LoRa module is correctly programmed for the regional frequency (915 MHz for the USA, 868 MHz for Europe).

If you encounter any issues not listed above, please refer to the support section for further assistance.

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10. Warranty and Support

The **AgEris Data Logger** is covered by a **1-year limited warranty** against manufacturing defects. This warranty does not cover damages caused by improper use or external conditions outside the device's operating specifications.

For technical support or service inquiries, please contact:

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

This User Manual provides the essential information for installing, operating, and maintaining the **AgEris Data Logger**. Should you require any additional assistance, don't hesitate to reach out to our support team.

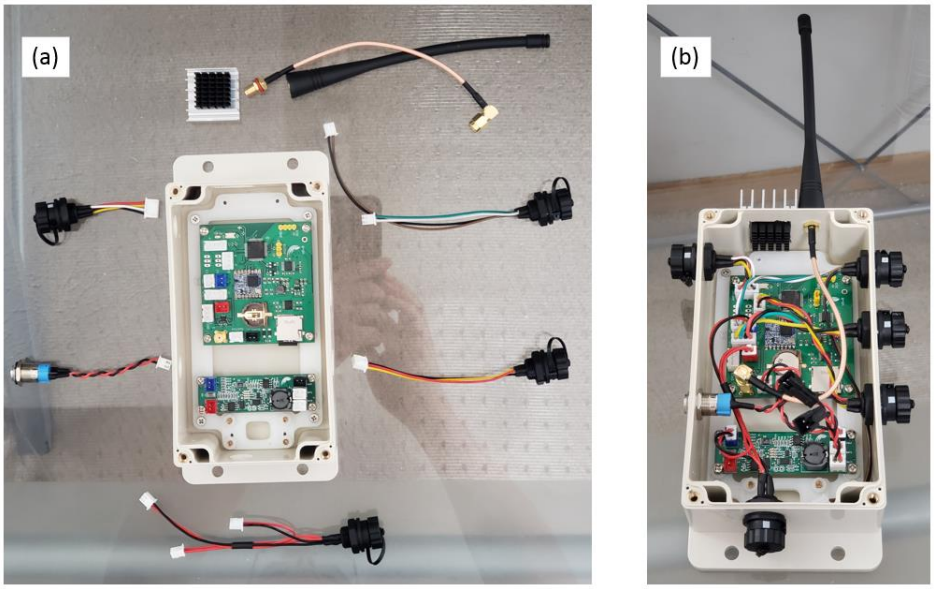

Figure 5: Pictures of AgEris Data Logger WSv8 (a) before, and (b) after assembly.

Important Notices

- **Color and Appearance**: The colors and appearance of the device may differ slightly from the images shown in this manual due to variations in production or model updates. The photos provided are for illustrative purposes only.

Consuelo Cecilia Romero, PhD

CEO / Member Next Season Systems LLC

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