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# Weather Station Sensor (MBS-WS) User Manual



**MBS-WS** For Green-X Greenhouse Control System

## OVERVIEW

Thank you for choosing the MBS-WS Weather Station Sensor. This sensor is designed for outdoor environments, combining wind speed, temperature, humidity, illuminance and rainfall measurements into one compact unit. With RS485 signal output, it provides stable, accurate data even in harsh weather conditions. This manual will guide you through the installation, operation, and maintenance of the MBS-WS sensor.

The MBS-WS sensor is widely applicable for environmental and climate detection. Its compact design ensures durability and ease of installation, making it suitable for various automated control systems.

## PACKAGE CONTENTS

- 1 x Weather Station Sensor (MBS-WS)
- 1 x Mounting Bracket
- 1 x Horizontal Tool
- 1 x 12ft RJ12 to 4-Pin IP65 Connector Cable (ECS-9)

# SPECIFICATIONS

Package Dimensions	190mm(L) x 170mm(W) x 170mm(H)
Package Weight	1.83lbs / 0.83kg
Communication Method	RS485
Waterproof Rating	IP54
Input Voltage	12V $\approx$ 0.1A (Powered by controller)
Power Consumption	<1W (standby mode)
Operating Temperature	-4~140°F (-20~60°C)
Operating Humidity	$\leq$ 90%RH

# INSTALLATION INSTRUCTIONS

Follow the steps below to install your MBS-WS sensor correctly:

## 1. Prepare the Mounting Area:

- Ensure that the sensor is installed in an unobstructed location to accurately collect wind and rainfall data. Utilize a horizontal leveling tool to achieve the correct alignment. When the bubble is centered within the level, it indicates that the sensor is positioned correctly.

## 2. Mount the Sensor:

- Use the provided metal bracket to secure the sensor in place.
- Ensure the wind sensor (spoons) is mounted horizontally and is free to rotate. Align it with the prevailing wind direction for accurate readings.

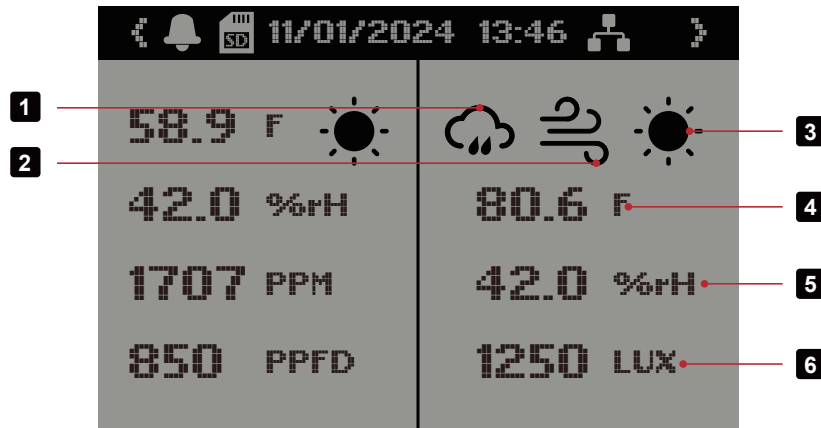
## 3. Connect to the Controller:

- Connect the 4-pin waterproof cable to the controller sensor port.
- Ensure all connections are tightly secured to prevent water ingress.

## 4. Power the Sensor:

- The MBS-WS operates on 12V power, supplied by the controller. Ensure that the sensor is receiving proper power before operation.

## OPERATION INSTRUCTIONS:



This interface indicates greenhouse and outdoor status, Left side indicates greenhouse status and right side indicates outdoor status.

### Outdoor Status

- 1** Rainfall Condition      **2** Wind Velocity      **3** Day/Night Condition      **4** Outdoor Temperature
- 5** Outdoor Humidity      **6** Outdoor LUX Level

Once installed, the MBS-WS sensor automatically begins measuring environmental conditions. The data is transmitted via RS485 to the control system for monitoring and analysis.

#### 1. Wind Speed:

- The sensor detects wind speeds from 0 to 49 ft/s, with a start-up wind speed of  $\geq 1.6$  ft/s.

#### 2. Temperature and Humidity:

- The sensor measures temperatures from  $-4^{\circ}\text{F}$  to  $122^{\circ}\text{F}$  with an accuracy of  $\pm 3^{\circ}\text{F}$  and relative humidity from 0-90% RH with an accuracy of  $\pm 5\%$  RH.

#### 3. Rainfall Detection:

- The rainfall sensor can detect precipitation of less than 10mm/24H.

#### 4. Illuminance detection

- The illuminance sensor can measure light intensity in the range of 0 to 65,000 lux.

## OPERATING CONDITIONS

- **Operating Temperature:**  $-4^{\circ}\text{F}$  to  $122^{\circ}\text{F}$
- **Operating Humidity:** 0% to 90% RH
- **Illuminance:** 0-65000 lux
- **Expected Lifespan:** 20,000 hours of outdoor use

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# OPERATION INSTRUCTIONS

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- **Temperature and Humidity:**

The sensor measures temperatures from  $-4^{\circ}\text{F}$  to  $122^{\circ}\text{F}$  with an accuracy of  $\pm 3^{\circ}\text{F}$  and relative humidity from 0-90% RH with an accuracy of  $\pm 5\%$  RH.

- **Rainfall Detection:**

The rainfall sensor can detect precipitation of less than 10mm/24H.

# SAFETY AND MAINTENANCE

## 1. Safety Precautions:

- Before installation, power off the device and unplug all connections.
- Avoid subjecting the sensor to impacts or dropping it.
- Do not install the sensor in environments where the temperature exceeds  $104^{\circ}\text{F}$ , as this may lead to damage or shorten the lifespan of the device.

## 2. Maintenance:

- Regularly inspect the sensor for signs of wear or damage, especially after severe weather events.
- Clean the wind and rainfall sensors to ensure accurate readings.
- If the sensor stops functioning, disconnect it and contact technical support.

## 3. Storage:

- Store the sensor in a dry place when not in use. Avoid storing it in temperatures below  $-4^{\circ}\text{F}$  or above  $140^{\circ}\text{F}$ .

## TROUBLESHOOTING

ISSUE	POSSIBLE CAUSE	SOLUTION
No data transmission	Loose connection or power issue	Check cable connections and power supply
Incorrect wind speed reading	Wind sensor blocked or damaged	Inspect and clean the wind sensor
Rainfall sensor not detecting	Blockage in rainfall sensor	Check and clean the rainfall sensor module
Controller not receiving data	Signal interference or cable issue	Ensure the cable length does not exceed specifications, and check the RS485 connection

The MBS-WS comes with a 3-year warranty. For any issues or concerns with our products, DO NOT return them to the store. Please contact our tech support department at [support@trolmaster.com](mailto:support@trolmaster.com) or call 877-420-9876.

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