



*Bio Instruments S.R.L.*

SENSORS AND SYSTEMS  
FOR MONITORING GROWING PLANTS

---

# **LWS-02z**

## Leaf Wetness Sensor

### Quick Start Guide



[www.phyto-sensor.com](http://www.phyto-sensor.com)

# Introduction

Innovative and easy-to-use, the dielectric Leaf Wetness Sensor enables accurate leaf wetness monitoring. Many fungal and bacterial diseases affect plants only when moisture is present on the leaf surface. The Leaf Wetness Sensor determines the presence and duration of wetness on a leaf's surface, enabling researchers and growers to forecast disease and protect plant canopies.

The LWS-02z sensor approximates the thermal mass and radiative properties of leaves to closely mimic the wetness state of a real leaf. The way it works is simple: if the canopy is wet, the sensor is wet; if the canopy is dry, the sensor is dry. The Leaf Wetness Sensor measures the dielectric constant of the top of the sensor. The dielectric constant of water (80) is higher than air (1), so the sensor can determine the presence or absence of wetness using this method. Measurements can be logged at user-defined intervals to determine the duration of wetness on the canopy. It is important to collect data frequently enough to capture changes in the surface wetness. A sampling frequency of 10 minutes or less is often necessary to accurately capture leaf wetness duration.

The LWS-02z comes with the 5-m cable, and a weatherproof box with electronics, which combines signal conditioner, primary datalogger, RF 2.4 GHz transceiver, and power supply (3xAA Alkaline batteries).

# Communication

The LWS-02z communicates over the radio 2.4 GHz channel with a network data logging unit. Activation of the sensor and measurement settings are described in the 'PM-11z Phytomonitor Quick Start Guide'.

# Power

The LWS-02z is powered by 3 AA Alkaline batteries.

# Readings

The LWS-02z sensor measures leaf wetness in range 0 to 100%.

# Installation

Mount the sensor with the sensitive side up.

We recommend that the sensors be cleaned using a moist cloth periodically, or when elevated dry output is detected.

# Customer Support

If you ever need assistance with your sensor, or if you just have questions or feedback, please e-mail at [support@phyto-sensor.com](mailto:support@phyto-sensor.com). Please include as part of your message your name, address, phone, and fax number along with a description of your problem.

# Specifications

Measurement range	0 to 100%
Resolution	0.1%
Accuracy	5%
Measurement Technique	FDR
Power	4.5 Vdc (3 AA Alkaline batteries)
Operating Environment	-20 to 60°C
Probe dimensions	145 × 65 × 13 mm
Cable Length	2 m
Protection index	Box: IP64 Probe: IP68

## **Bio Instruments S.R.L.**

20 Padurii St., Chisinau MD-2002

REPUBLIC OF MOLDOVA

Tel.: +373-22-550026

[info@phyto-sensor.com](mailto:info@phyto-sensor.com)

[www.phyto-sensor.com](http://www.phyto-sensor.com)