AUTOMATIC WEATHER STATION (AWS)

Weather Station for Agricultural, Educational, Environmental, Hydropower and Industrial Applications

LUMBINI E TECHNO PRODUCTS

Kalika Nagar 10, Butwal

Figure 1: MAUSIM provides real-time weather data on an hourly and daily basis.

Our fully automatic weather station (AWS), namely MAUSIM, is designed for accurately measuring meteorological data and easy installation. This device specifically measures air temperature, relative humidity, rainfall, air pressure, and wind speed and wind direction. These data are typically useful for crop management, disaster risk management, and study of climate, environment and ecology. Therefore, useful for farmers located in Terai and mountainous regions, environmentalists, educators, students, and resource managers.

The MAUSIM weather station uses internet-compatible software for accessing data from electronic devices to PC, laptop or in mobile phone. The assembly includes meteorological sensors, and a mechanically strong and water proof metallic box that houses all the electronic components, electrical and communication devices, and solar system for powering the station. In particular, the metallic box houses the PCB board with on-board microprocessor, rechargeable battery bank, charge controller and a WIFI device.

The sensors are attached to PCB board with RJ11 modular jack connectors. The MAUSIM weather sensors, metallic box and solar panel can be easily attached to the sensor stand made of 1" diam. stainless steel pipe.

The on-board microprocessor attached on the PCB automatically receives data from the sensors, then stores the data in an on-board data logger (SD card) before transmitting the data to a user-supplied PC or to google sheet. The data can be easily accessed from any mobile or computer device via WIFI.

Instructions for Installation

1. Select a suitable site for installation of AWS (while selecting the site make sure that sun light and the movement of wind are not blocked by any builing , tree or any other structures).
2. Remove all the components of MAUSIM from the supplied boxes.
3. Install the user-supplied stand on the chosen location with the help of supplied three nails (the Nail Anchor N with Thread). Then assemble the sensor box and solar panel at the sensor stand with help of supplied holders.

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Contact: 9849784962

4. Install both the PCB Board and the Display Board at a PCB holder compartment, which is fixed inside the sensor box, with the supplied nuts and bolts.
5. Install the wifi device as intructed by the company.
6. Then connect the power cord coming from the output of charge controller and turn on the MAUSIM weather station switch.

Within a few minutes, a typical user can begin monitoring weather information remotly on the Host PC and mobile phones through the internet from any part of the world!

MAUSIM AWS measures:

- Air Temperature
- Relative Humidity
- Barometric Pressure
- Rainfall
- Wind Direction
- Wind Speed

MAUSIM AWS software is:

PC compatible with 32-bit Windows operating system

Internet compatible with optional Internet edition software upgrade

Sensors and their Specifications:

Parameter	Range	Resolution	Accuracy
Wind Speed	0 - 99 m/s	0.66 m/s	± 0.3 m/s
Wind Direction	0 - 360 °	22.5 °	± 3°
Temperature	-40°C - 85 °C	0.1 °C	±0.5 °C
Relative Humidity	0 - 99.9 %	0.1 %	±2 %
Precipitation	0 - 4 mm/min	0.28 mm	± 5 %
Atmospheric Pressure	300 hPa - 1100 hPa	0.02 hPa	± 0.12 hPa
Time/Date/Day	Full	5 min	± min

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Data Display

Figure 2: Screen shot of the data seen on the Display Screen to check the status of the communication systems and the sensors.

In Figure 3, we show a typical data sheet retrieved from our AWS. We can configure the data acquision time as per user's need. The parameters (temperature, humidity, wind speed and directions are the average of all the data accumulated within 15 minutes. Whereas, a typical datum of the rain represents sum of all the counts recorded within that time frame.

Weather Station Observation Sheet						
Location:	Shantipur Higher Secondary School, Shantipur, Gulmi					
Latitude:	28° 06' 47.2" N		Elevation:	1067 m asl		
Longitude:	83° 24' 49.8" E		Height of Anemometer from ground:	12 m		
Date	Time	Temperature °C	Relative Humidity %	Wind Speed (mph)	Wind Direction	Rain (inch)
3/25/2023	6:33:57 PM	17.6	78.0	0.0	0	0
3/25/2023	6:34:57 PM	17.6	77.0	0.0	0	0
3/25/2023	6:36:57 PM	17.5	77.0	0.0	90	0
3/25/2023	6:37:57 PM	17.5	78.0	4.0	0	0
3/25/2023	6:38:59 PM	17.5	77.0	0.0	0	0
3/25/2023	6:39:58 PM	17.5	78.0	0.0	90	0
3/25/2023	6:40:58 PM	17.5	79.0	0.0	90	0
3/25/2023	6:41:58 PM	17.5	78.0	1.0	45	0
3/25/2023	6:42:58 PM	17.5	77.0	1.0	45	0
3/25/2023	6:43:58 PM	17.4	78.0	0.0	32	0
3/25/2023	6:45:00 PM	17.3	78.0	0.0	0	0
3/25/2023	6:45:59 PM	17.3	79.0	0.0	90	0
3/25/2023	6:46:59 PM	17.3	79.0	1.0	0	0
3/25/2023	6:48:00 PM	17.3	79.0	1.0	45	0
3/25/2023	6:49:00 PM	17.2	78.0	0.0	45	0
3/25/2023	6:50:00 PM	17.2	78.0	0.0	0	0
3/25/2023	6:51:00 PM	17.2	80.0	1.0	180	0
3/25/2023	6:52:01 PM	17.1	81.0	0.0	180	0
3/25/2023	6:53:01 PM	17.0	81.0	1.0	180	0

Figure 3: Typical data displayed in the google sheet.