

**WHIRLYBIRD**



**AUTOMATIC  
WEATHER STATION  
IWS-M**

Prepared By:

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IWS-M is an Automatic weather station you can count on for reliable and accurate environmental measurements.

## UTILITY AREA

- Environment monitoring
- Agriculture
- Hydrology
- Meteorology
- Stand alone weather station
- Marine weather

## ADVANTAGES

- Self Contained
- Rugged
- Easy installation
- Plug and play sensors
- Low Power Consumption
- Easily Configurable
- One person can install in less than 30 minutes

IWS-M is a rugged self contained automatic weather station that provides general meteorological measurements. IWS-M comes with Anemometer, Rain Gauge, Humidity & temperature sensor and IDL-M Data logger.

Sensors and the data logger is mounted on a single pole of 2 inch diameter. Pole could be supported by metal cables and clamps. Station will be supplied with a 5 watt solar panel which can be mounted on pole. and the data logger will be connected to the sensors with the cables provided.

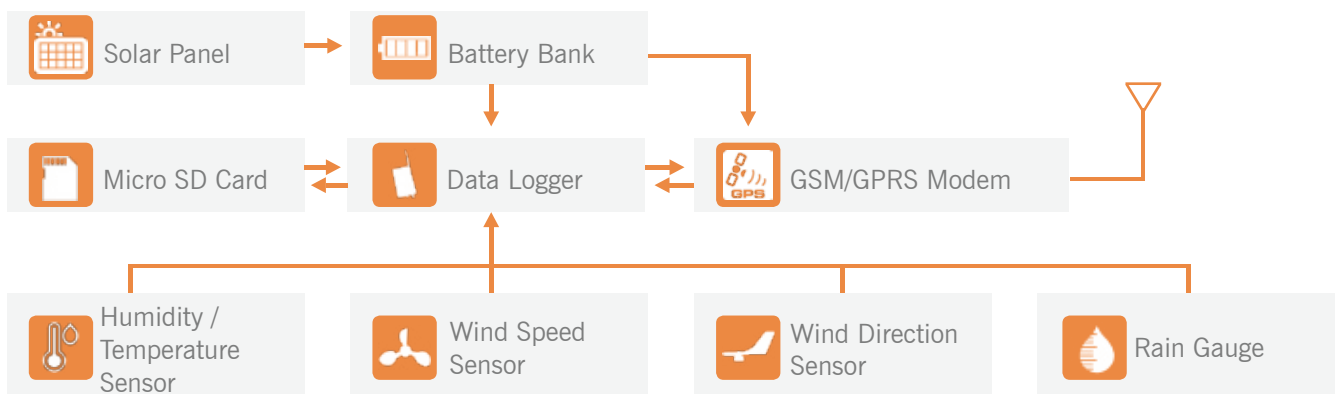
IWS-M supports four extra analog channels for measurements. Data is uploaded over a predefined server using GPRS

communication. Data can be downloaded from web servers or from data logger manually. A 4 GB SD card is enough to store lifelong data and configuration files in it.

A 20x2 LCD Display provides interface for viewing sensor's instantaneous data, GPRS status and system health. It also helps in data backup and system configuration.

Lithium battery is provided for long life and fast charging over a 5 watt solar panel. One extra slot is available for battery expansion .Solar panel capacity can also increased as MPPT charger is inbuilt in data logger

## BLOCK DIAGRAM



## IDL-M

### Easy-To-Use, Affordable Wireless Data Logger

- 5, Analog Input
- 2 Digital Input
- SD card for Data Logging
- Full Remote Access
- Configurable Time Intervals
- Fully Autonomous Operation

### DESCRIPTION

The IDL-M is an easy to use and affordable data logger. It is designed to measure common hydrologic and metrological sensors and log the data in its flash memory. The general purpose data logger supports up to 5 measurements with its sensor interface.

WDL-1 includes a SD memory slot for downloading data. Data loggers can be used stand-alone or can be connected with wireless connectivity option using GPRS.



### SPECIAL FEATURES

- Up-to 9 independent measurements
- Operates stand-alone or wireless
- More than a week of battery backup
- Full featured RS-232 interface

### INPUTS

- Five 0-3V analog input
- 2 digital inputs (Rain & wind speed)
- One I2C interface

### SPECIFICATION

Clock.....	Internal real time clock
Log Capacity .....	More than 20 years on SD card
Temperature .....	-40o to +60o C
Data Connection .....	RS-232 PC connect/GSM/GPRS
Power Consumption .....	<1mA to <1.5mA @3.3 VDC quiescent <20 mA @ active mode
Dimensions .....	6.5"x 6.3"x 4.9" IP65 Enclosure

## MEASUREMENTS

### Wind Direction and Wind Speed Sensor



WDL-1 uses a three cup anemometer for high accuracy, sensitivity and durability. The cups are connected to a shaft which turns a sensing element that converts the rotation into a series of electronic pulses.

A light weight vane provides the motive power for the wind direction sensor. As a vane tails moves it turns a shaft on a pair of bearings. Shaft turns a sensing element that converts the rotation into analog voltage.

#### SPECIFICATION

##### Wind Speed

Range:.....3 -250 km/h  
Resolution:.....1 Km/h  
Accuracy:..... ± 5%

##### Wind Direction

Range:.....0-360 degree  
Resolution:.....1 degree  
Accuracy:..... ± 7 Degree

### Rain Gauge Sensor

The collector is designed for years of accurate and trouble-free services. The body and base of the collector is constructed of tough, UV resistant plastic. The tipping bucket pivots on bearings that minimize friction and wear. Stainless steel adjustment screw under each chamber of tipping bucket allows you to fine-tune the calibration of the rain collector

#### SPECIFICATION

Range.....0-999 mm Daily  
Resolution.....0.1 mm  
Accuracy..... ± 4%



## Humidity and Temperature Sensor



Both Temperature and Humidity are built into the Radiation shield at the bottom of the assembly. The integral shield limits errors due to solar radiation. The RH sensor is a capacitive element enclosed in a protective membrane.

### SPECIFICATION

#### Humidity

Parameter	min	Typical	max	unit
Resolution.....	0.4	0.05	0.05	%RH
Accuracy.....		4.5		%RH
Repeatability .....		0.1		%RH
Hysteresis .....		1.0		%RH
Non-Linearity.....		<< 1.0		%RH
Response Time .....		8.0		Sec
Operating Range .....	0.0	0.5	100	%RH
Long Term Drift.....		< 0.5		%RH/yr

#### Temperature

Parameter	min	Typical	max	unit
Resolution.....	0.04	0.01	0.01	°C
Accuracy.....		0.5		°C
Repeatability .....		0.1		°C
Operating Range .....	-40.0		85	°C
Response Time .....		8.0		°C
Response Time .....	5		30	sec
Long Term Drift.....		< 0.04		°C/yr