Pacific Data Systems Pty Ltd

Brochure

PDS Automatic Weather Stations

Introduction to weather monitoring

Since Pacific Data Systems commenced the manufacture of automatic weather stations in 1986, we have delivered stations to hundreds of customers both across Australia and in 22 overseas countries.

Our automatic weather stations are supplied with our own "Remterm Weather®" software which provides the user with the ability to configure the station's operational parameters, (sensor types, measuring ranges, logging intervals, etc) and to retrieve the stored data in either graphical or report format. Real-time graphical display of data is also available, as is remote communication with the station via the PSTN telephone network, the GSM or CDMA cellular telephone networks, satellite data networks such as Inmarsat D® or Iridium® spread-spectrum radio-modems or VHF radio data links.

Our automatic weather stations offer an "open architecture" so that virtually any type of sensor (be it meteorological, air quality or water quality) may be connected – regardless of whether the sensor's output signal is voltage, current, resistance, frequency, contact closure or pulse. Other weather stations use a "closed architecture" whereby only sensors made by that particular manufacturer may be used. The constraints of such a system are obvious.

We offer a three-year warranty on weather stations and a one-year warranty on sensors telemetry modules and accessory items. These warranties cover both parts and labour. In addition, we provide unlimited free telephone support to our customers.

The heart of the system - The data logger

The standard datalogger used in Pacific Data Systems AWS (Automatic Weather Station) is the Datataker DT80. This Microprocessor based, battery-powered logger has five differential or fifteen single ended analogue input channels, eight digital channels, one serial channel and high speed counter channels. Most types of sensors can be connected to this extremely versatile logger, enabling the logger to be used for other functions, in addition to meteorological monitoring. The DT80 stores data on a Compact Flash memory (64Mb) which may be upgraded to 1Gb. Additionally, the DT80 is also auto-calibrating and auto-ranging thus aiding the selection of the optimum workable parameters.

Using the AWS in the field with either a portable computer or USB flash drive

Using the Weather Station with a computer is made easy by the Windows based software supplied with each AWS which will run on IBM PC's and compatibles. You Simply "Point - and - click" on the required menu parameters in order to make you selection. Later, when you want to retrieve the stored data, you simply reconnect your computer and unload the stored data to a spreadsheet or database file.

USB flash drives are available to provide increased data storage capacity of up to 2Gb readings. The USB flash drives are transportable for downloading data via an off-site computer. The flash drive may also be used to store the stations program, if it becomes necessary to change a program in the field. This may be done without the need for a computer on-site, simply by inserting a flash drive into the logger's USB socket.

Product

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A typical Automatic Weather Station installation

Housed in a weatherproof enclosure (IP68), the AWS will record and log data from the various sensors while mounted on a two meter mast, a ten meter mast, or a custom mast/mounting.

The AWS is commonly powered from an rechargeable battery, which is intern trickle-charged by a solar panel when located at remote sites. As the power requirements of a station change due to telemetry requirements and sensor power, the solar panel is sized to suit the power demand of the particular configuration of the station. Additionally, the AWS may be mains powered, if a mains electrical supply is available or if solar power and mains is not available then wind generation may be used.

The configuration of an AWS may vary due to the purpose of the system but typically consists of:

* A weather-proof enclosure containing the data logger, rechargeable battery and telemetry (optional);
* Meteorological sensors;
* Solar panel;
* Mast;

Depending upon the purpose of the station as well as location details, the base AWS sensor configuration is but not limited to:

* Wind speed and direction (cup and vane or ultrasonic);
* Air Temperature;
* Relative Humidity;
* Global Radiation;
* Raingauge;

The Relative Humidity and/or Air Temperature sensor(s) are mounted in a solar radiation shield which protects the sensor(s) from direct heat from the sun and radiated heat reflected off the ground surface.

Available Sensors

* Wind Speed
* Vertical Wind Speed
* Net Radiation
* UVA Radiation
* Ground Temperature
* Air Temperature
* Barometric Pressure
* Wet/Dry Bulb
* Leaf Wetness
* Dew Point
* Wind Direction
* Global Radiation
* Sunshine duration
* UVB Radiation
* Grass Temperature
* Leaf Temperature
* Relative Humidity
* Soil Moisture
* Rainfall
* Visibility

The versatility and flexibility of the PDS AWS System also allows non-meteorological sensors to be monitored. Such sensors include :

Water Quality

* pH
* conductivity
* redox
* turbidity
* dissolved oxygen
* level (flow)

Air Quality

* NO_2
* SO_2
* O_3
* CO_2
* THC
* Particulates (dust)

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