

# AWS1 - Automatic Weather Station

## Product Overview

The new AWS1 Automatic Weather Station from ICT International provides flexibility, accuracy and value for money.

The system built around the powerful WSL logger provides 10 Analogue channels and 5 Pulse counter channels, 24-bit resolution, simplicity of use, flexibility in sensor choice and a full range of communication options.

The AWS1 can be supplied with a preconfigured set of sensors for Air Temperature, Relative Humidity, Barometric Pressure, Wind Speed, Wind Direction, Solar radiation, PAR and rainfall. Options such as soil moisture and soil temperature can be added.

Using the intuitive Graphical User Interface (GUI) software alternative sensors can be exchanged and configured to provide calibrated processed data logged directly by the weather station for immediate use or analysis.



The Weather Station is supplied with a cross arm and basic mounts so it can be attached to any type of customised mast. Alternatively a standard pole mast can be purchased with the system.

## Features

- High 24-Bit resolution
- 2GB Micro SD Card Memory
- IP68 Enclosure—No Logger Housing required
- Windows Configuration Software
- Wireless Communications Options



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# AWS Specifications

Temperature	
Units	°C
Range	-40 °C to + 120 °C
Resolution	0.01 °C
Accuracy	+/- 0.3 °C
Excitation Voltage	3.3 V

Solar Radiation	
Units	W m <sup>2</sup>
Range	0—1750 W m <sup>2</sup>
Resolution	1 w m <sup>2</sup>
Accuracy	1 w m <sup>2</sup>
Excitation Voltage	None passive

Wind Speed	
Units	m/s or km/hr
Range	0-58 m/s (0-209 km/hr)
Resolution	0.45 m/s (1.6 km/hr)
Accuracy	+/- 5%
Excitation Voltage	None Passive

Barometric Pressure	
Units	kPa
Range	50 kPa to 115 kPa
Resolution	0.15 kPa
Accuracy	+/- 1 kPa
Excitation Voltage	3.3V @ 5 μA

Humidity	
Units	RH%
Range	0-100 %
Resolution	0.05%
Accuracy	+/- 2%
Excitation Voltage	3.3 V

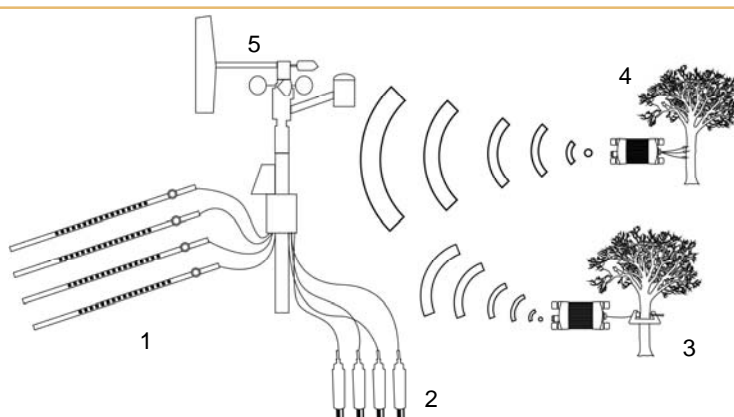
Quantum PAR	
Units	μmol m <sup>-2</sup> s <sup>-1</sup>
Range	Full Sunlight 2,000 μmol m <sup>-2</sup> s <sup>-1</sup>
Resolution	2 μmol m <sup>-2</sup> s <sup>-1</sup>
Accuracy	2 μmol m <sup>-2</sup> s <sup>-1</sup>
Excitation Voltage	None Passive

Wind Direction	
Units	Degrees ( ° )
Range	0 to 360 °
Resolution	1° (0 to 355°)
Accuracy	7 °
Excitation Voltage	None Passive

Rainfall	
Units	. mm
Range	0-500 mm/hr
Resolution	0.2 mm
Accuracy	+/- 3%
Excitation Voltage	3.3 V

Pictured right is the AWS1 with a variety of possible sensor combinations, both direct and wireless connection.

1. Linear PAR Sensor - LSM
2. MP406 - SMM
3. Stem Psychrometer - PSY1
4. Sap Flow Meter - SFM1
5. Automatic Weather Station - AWS1



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# WSL Logging Specifications

Logging	
<b>Analogue Channels</b>	5 differential or 10 single ended
<b>Voltage Input Range</b>	0 -15V
<b>Pulse Channels</b>	10
<b>Interface</b>	RS485
<b>Interface</b>	I2C
<b>Resolution</b>	0.0002V-24-Bit
<b>Accuracy</b>	0.001V
<b>Response Time</b>	1 second
<b>Sampling Frequency</b>	10Hz
Data	
<b>Communications:</b>	USB, Wireless Radio Frequency 2.4 GHz
<b>Data Storage</b>	MicroSD Card, SD, SDHC & SDXC Compatible (FAT 32 Format)
<b>Software Compatibility</b>	Windows XP, Vista and Windows 7
<b>Data File Format</b>	Comma Separated Values (CSV) format for compatibility with all software programs
<b>Memory Capacity</b>	2GB expandable to 64GB
Operating Conditions	
<b>Temperature Range</b>	-40 °C to +80 °C
<b>R/H Range</b>	0 -100%
<b>Upgradable</b>	User upgradeable firmware using USB boot strap loader function
Power	
<b>Power supply</b>	12-24V DC 2-wire non polarized bus
<b>Power Consumption</b>	20 mA
<b>Internal Battery Monitoring</b>	Logging internal battery voltage & charging current
<b>Charging Rate</b>	Automatic variable rate of charging to maximise solar panel charging current on full sun days and or under low light cloudy conditions.  Variable current 50 mA to 200 mA

## Features

### Power Management

- Internal Lithium-Polymer Battery
- Power On/Off Switch
- Internal Voltage Regulation
- Optical Isolation Lightening Protection

### Logging

- Stand-Alone Logging
- 24-Bit Resolution
- MicroSD Expandable Memory
- USB Connectivity
- Wireless Data Transfer
- IP68 Water Proof Rating
- Free Windows Utility Configuration Software

### Applications

- Geo, Civil and Environmental Engineering
- Hydrology Management
- Mine Site, Land Fill, Road & Railway Monitoring
- Plant Canopy Monitoring

### Accessories

- MCC
- Quad Band GPRS, GSM, 3-G CDMA Modem



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# WSL Logging Specifications

Power Continued	
<b>Power Fail Safe Mode</b>	Hibernation mode on low power threshold Auto restart logging on measurement threshold – no user intervention required
<b>External Battery Back</b>	Sealed Lithium Polymer 12V battery (no maintenance), IP68 Water proof enclosure – vented to atmosphere, integrated voltage regulator Non-polarised, diode regulated charging to enable solar pass through to internal instrument battery under sunlight conditions and auto switching to external battery backup under no light conditions such as night time operation or monsoonal storms.
<b>Charging Current</b>	Can be charged from USB port of PC
<b>Charging Supply</b>	Preset voltage thresholds
<b>Battery Life</b>	7 days without any solar charging
<b>Solar Panel</b>	10Watt
<b>Power Input</b>	12-24V DC 2-wire non polarized bus
<b>Lightening Protection</b>	Multi-stage, Optical Isolation, Gas discharge tube, MOV, TVS diode.
Enclosure	
<b>IP Rating</b>	Water Proof IP68 rating submersible to 1 m of water. Dual Chamber design physically separated and electrically linked to prevent water ingress along power cable entry. Power supply input physically disconnected from chamber housing electronic circuitry IP68 Gore-Tex valve for atmospheric equilibration. High density foam insert for known and controlled volume of internal air space cavity to regulate movement of air and limit potential for condensation within the enclosure. Also provides vibration and shock .
<b>Dimensions</b>	130mm x 82mm x 35mm
<b>Weight</b>	1.5 kg

## Optional Sensors for Direct Connection

- Soil Moisture - MP406
- Soil Tension - GT3-1, Gt3-15, GT3-30
- Soil Oxygen Meter - ICT02 Sensor
- Leaf Wetness
- Light Sensor Meter - Linpar



MP406

## Optional ICT Devices for Wireless Connection



Sap Flow Meter - SFM1



Stem Psychrometer - PSY1



ICT Instrument



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