

## Wireless Environmental Monitoring from NVSI®

### EnviroPoint powered by accsense®

#### Product Description

*EnviroPoint* is an environmental monitoring system that can collect, store and communicate sensor data using a secure wireless connection. The *EnviroPoint* can be installed in multiple locations with data centralisation via NVSI's *EnviroPoint* monitoring software. Hosted on a Windows PC, this handles tasks such as logging all sensor data, generating reports, graphing sensor data, and messaging in the event of an alarm condition.

The next generation *EnviroPoint* system adds new and exciting capabilities including flash data storage, on-board time-stamping, backup battery, external sensor bus, web cam interface, PC data acquisition, and advanced wireless mesh networking capabilities. The wireless gateway uses conventional 10BaseT/100BaseT Ethernet to allow data storage and monitoring from anywhere there is a network connection. Web panels allow remote viewing from just about anywhere via the Internet.



*EnviroPoint* Sensor Pods and Gateway by Accsense

#### Features

- **Accurate** – high accuracy sensors. Centralised calibration system.
- **Compact** - integrated sensors for temperature, relative humidity, ambient light, sound and vibration.
- **Configurable** – user can set alarm conditions that initiate email messages. Network configuration with dynamic and static IP option. Numerous sensor configuration possibilities.
- **Reliable** – low power with backup battery, time-stamping and on-board data storage ensures data isn't missed during power outages when environmental conditions often fluctuate. Wireless mesh networking improves reliability and allows distances up to 1,200m.
- **Flexible** – additional sensor pods can be added while the system is running. Remote panel allows access to the monitoring computer via the Internet. Sensor pods can be relocated without costly cabling. Supports EnviroMon 2 Ethernet modules.
- **Expandable** – external sensor bus allows additional sensors to be connected to some modules. General purpose inputs for additional signal logging. Web cam interface can record images at programmable intervals. Supports National Instruments PC data acquisition cards enabling virtually endless possibilities for high accuracy, high bandwidth and high count traceable measurements and logging.
- **Secure** – all data can be saved on a PC and can also be saved to a network server. Uses standard IEEE802.15.4 low power wireless network standard. All security operations are based on ultra-secure AES encryption using 128 bit keys.
- **Safe** – low voltage and power consumption.
- **Low cost solution** – integrated sensors lower measurement cost and minimise installation requirements.

#### Applications

- Storage area monitoring (Food)
- Home/Office/Building monitoring
- Factory and warehouse monitoring
- Agricultural data collection
- Biological and environmental research
- Asset, archive and display protection and monitoring (Museum)

## Measurement Specifications

### Ambient: Temperature & Relative Humidity Sensors

- Temperature -40° to 70°C ( $\pm 0.3^\circ\text{C}$  accuracy @  $25^\circ\text{C} \pm 1.4\%$  Full Scale, Resolution 0.01°C)
- Humidity (Range 5% to 95% RH, Accuracy @  $25^\circ\text{C} \pm 2\%$ ,  $\pm 3\%$  Full Scale, Resolution 0.03%)

### Optical: Visible Light Detection

- Ambient Lighting (Resolution 0.1%)
- Acoustic Level (Resolution 0.1%)
- Vibration (3-axis average, Max 3G Offset Error  $\pm 10\%$ , Sensitivity Error  $\pm 10\%$ , Resolution 0.006G)

### Analog Sensor Expansion Bus: (0 to 20mA and 0 to 5V input $\pm 0.29\%$ accuracy @ $25^\circ\text{C}$ )

- Pressure measurements
- Noise level measurements
- pH Sensors
- UV light
- Other sensors

**Sample Rates:** 1s, 2s, 5s, 10s, 30s, 60s (Configured for each channel depending on the number of pods per gateway)



*EnviroPoint Sensor Pod by Accsense*

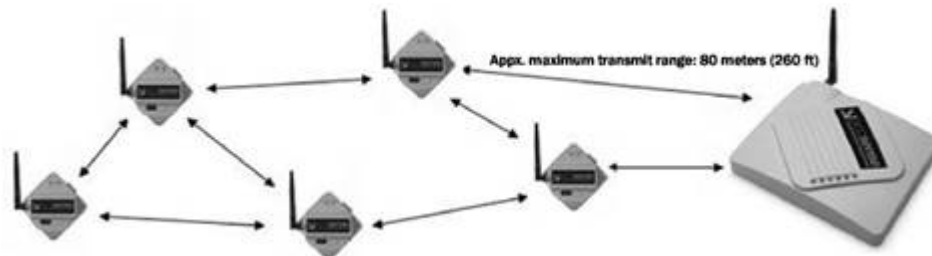


*EnviroPoint Gateway Pod by Accsense*

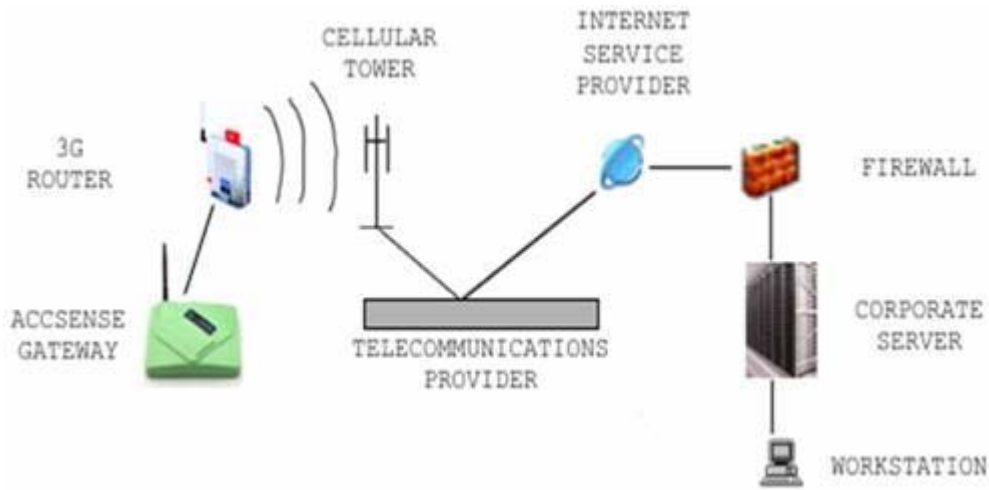
## The Wireless Network

The Wireless Solution network is based on the IEEE 802.15.4 standard, unlike WiFi routers that are based on IEEE 802.11. The radio, which uses a 2.4 GHz ISM band, has 16 channels but utilizes the quietest channel based on a scan.

Because the Gateway communicates with up to sixteen Sensor Pods via radio frequency transceivers, it is important that the Gateway be located within range of at least one Sensor Pod. The Gateway and Sensor Pod(s) form a mesh network which enables each Sensor Pod to function as a repeater for others. Pods can relay messages with a maximum transmit range of 80 meters with the 2.2db gain antennas and 300 meters with the 9db gain antennas between two Pods or the Gateway. This distance may be shorter in places such as indoors or in an area with lots of radio noise.



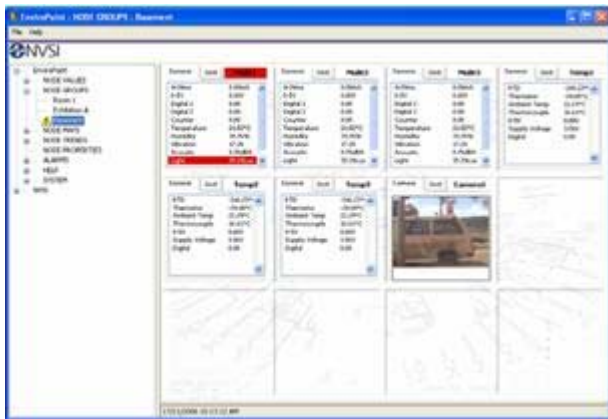
Maximum operating range between the Gateway and/or Sensor Pods is approximately 80 meters with the 2.2db gain antenna.]



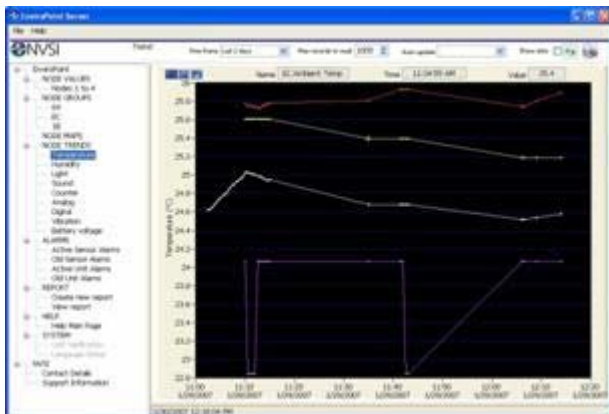
Optional Remote 3G Link

**The EnviroPoint Monitoring System**

- User-friendly intuitive Graphical User Interface utilising Windows based controls such as tree structure navigation.
- Data logging engine that records information from *EnviroPoint* wireless pods
- Range alarms for each sensor connected to the network
- Trend charts displayed real-time on a per sensor basis.
- Historical data viewer to allow viewing of all sensor data for requested time periods.
- Notification service.
- Web server to allow remote viewing of the Environmental Monitor panel
- User security logon feature for protecting system configuration
- Microsoft® Windows XP, secure data storage using SQL database server and certified systems for ISO certification.
- Custom solutions and tailoring to your specific needs.



NVSI *EnviroPoint* User Interface – View by Location



NVSI *EnviroPoint* User Interface – View Data Plot



requirements			
Max Number of Nodes	32	65,536 <sup>†</sup>	1,048,576 <sup>†</sup>
Max Number of Gateways	32	65,536 <sup>†</sup>	65,536 <sup>†</sup>
Software plug-ins for other types of Sensor (i.e. Web Cam)	-	√	√
Web Cam	-	√	√
Node output control (On Pod type A1-08 to A1-10)	-	√	√
Remote Nodes using G3 Mobile connection	-	√	√
Network Security SSL encryption data links	-	√	√
Encrypted Database Tables	-	-	√
Gateway Connection	Direct Stream	Direct Web	Direct Web
Gateway Configuration	Accsense Config Utility	Accsense Config Utility	Inbuilt
Pod history data with a network outage	Nil	Limited by Gateway memory	Limited by Gateway memory
Multiple Systems monitored (each system could be a different division of an organisations)	-	√	√
Location Name is master reference for data (this enables pods to be exchanged for each location, i.e. during calibration)	√	√	√
Location of Sensor	√	√	√
Node enable/disable	√	√	√
Node channel selection (Log only selected channel data rates to calibrated data tables)	-	√	√
Validation mode for sensors	-	√	√
Node Channel Calibration	√	√	√
External Sensor Calibration (Calibration factors for both the Pod input plus the sensor)	-	√	√
Pod & Sensor Drift Correction	-	√	√
All raw data stored	√	√	√
All calibrated data stored	√	√	√
Selectable data sample rates per channel	√	√	√
Fast sample rate on alarm	√	√	√
Channel sample data can be started and stopped by time of day at different sample rates	√	√	√
EnviroPoint Monitor number of displays screens	1	2	4
User Logon Control	√	√	√
Digital Signatures	-	-	√
Remote System Configuration	-	√	√
Multi-lingual Support	√	√	√

Node data & info display	√	√	√
Number of nodes able to be displayed on the monitors at one time	32	160 (2x 80)	320 (4x 80)
Node set to a Group	√	√	√
Node Group data & info display	√	√	√
Node Chart Display	√	√	√
Chart Display Printing	√	√	√
Group Node Maps	√	√	√
Group Node Maps type	.jpg .bmp .png	.jpg .bmp .png	.jpg .bmp .png .dfx
Alarms	√	√	√
Alarm Threshold Delay Time	√	√	√
Alarm Hysteresis	√	√	√
Different Alarm limits for selected times of the day	√	√	√
Multi Level Alarms	-	√	√
Group Node Maps Display Alarms	√	√	√
Node Timeout Alarm	√	√	√
Signal Strength Node Alarms	√	√	√
Supply Voltage Node Alarms	√	√	√
Mains Power Node Alarms	√	√	√
Email Alarm Notifications	-	√	√
SMS Alarm Notifications	√	√	√
Active Sensor Alarm Listing	√	√	√
Old Sensor Alarm Listing	√	√	√
Active Unit Alarm Listing (Node functions)	√	√	√
Old Unit Alarm Listing (Node functions)	√	√	√
Alarm Acknowledgement by Operator	√	√	√
System Logs	√	√	√
Audit Logs	-	SQL Triggers	Full
Report Generation	√	√	√
Periodic Report Generation	√	√	√
Digital Signed Reports	-	-	√
Printer Selection	Only default	Selectable	Selectable
Server Web reporting using Reporting Services	-	√	√
Database Data Tables Full Text Search capable	-	√	√
Online Help	√	√	√
Support Information	√	√	√

† Limited by the SQL server system resources and system network.

\* Not yet released