



Online Monitoring & Data Logging For Refrigeration systems, cool rooms, deep freezers, HVAC

Monitoring, alarming, data logging & reporting of temperature, relative humidity and other environmental conditions are increasingly required by the occupational health and safety (OH&S) authorities.

ZigSense sensors combined with **ZigCloud** online monitoring services support a long list of environmental and energy parameters. These low power sensors can be installed in new or be added to exiting refrigeration systems, cool rooms, pharmaceutical processes, cold storage, hospital equipment and buildings HVAC systems.

Data generated by a range of **ZigSense** sensors is sampled & uploaded to a dedicated and secured internet 'cloud' storage area.

The allocated 'cloud' area is accessible only to authorized users. Access to the logged data is available at any time from anywhere (24x7x365) using standard web browsers available worldwide on any PC, laptop, smart phone and tablets.

Alarm conditions are continuously tested in the 'cloud' and compared with pre-defined set-points. An alarm will be reported and sent as a message via SMS, email, twitter or synthesized voice to authorized users. All alarms are time stamped and logged in the 'cloud'.

Real Time and Historical data can be viewed online using built-in dynamic graphical objects including historical trends and tables. Reports containing historical charts and statistical results can be automatically generated and emailed in a PDF format.

ZigSense sensing nodes offer exceptional flexibility whilst minimizing installation costs. **ZigCloud** online monitoring services are a unique low cost solution to data monitoring and logging when compared to any SCADA systems.



Wireless Sensors & Data monitoring in the 'cloud'

Who can benefit from using wireless sensors?

Building management - HVAC systems (BMS)

Supermarkets - Fresh foods, Frozen foods, Dairy products

Cold storage - Fresh & frozen produce

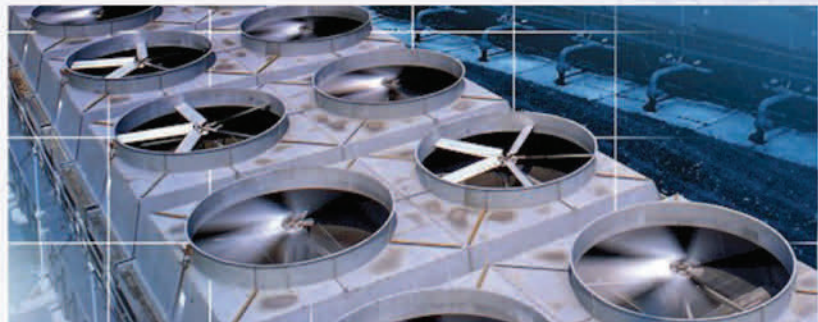
Deep freeze storage - Fish and Meat

Hospitals & Hotels - Commercial kitchens

Pharmaceutical laboratories - freezers, refrigerators

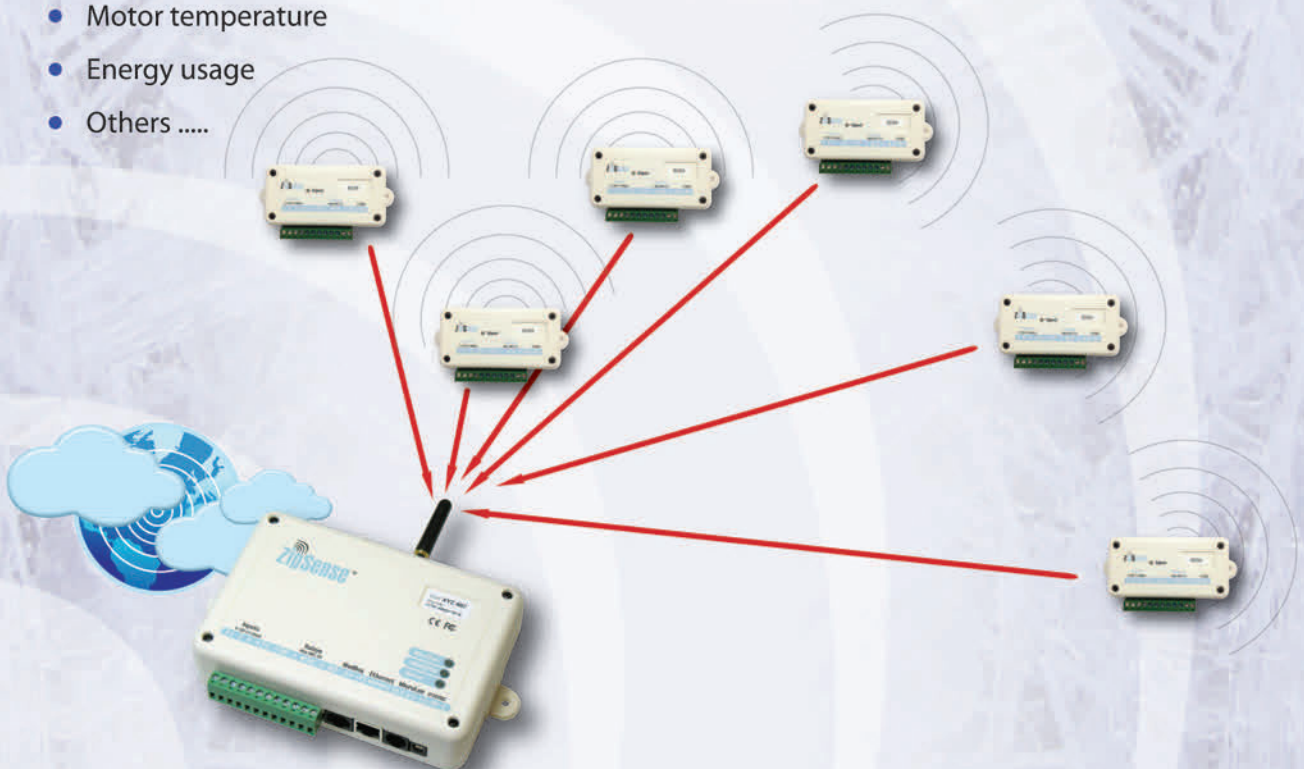
Hospitals - Pharmaceuticals storage

Universities - Medical research laboratories



What parameters can be monitored?

- Temperature
- % Relative Humidity
- Door OPEN/CLOSE
- Motor START/STOP
- Motor temperature
- Energy usage
- Others



How information is presented?

Data is presented online in real-time using graphical objects such as gauges, numerical displays and dynamic tables. Historical data is presented as graph or reports.

Users can combine online historical data from different sensors into a single graph page. Historical time span of graphs can also be modified online.



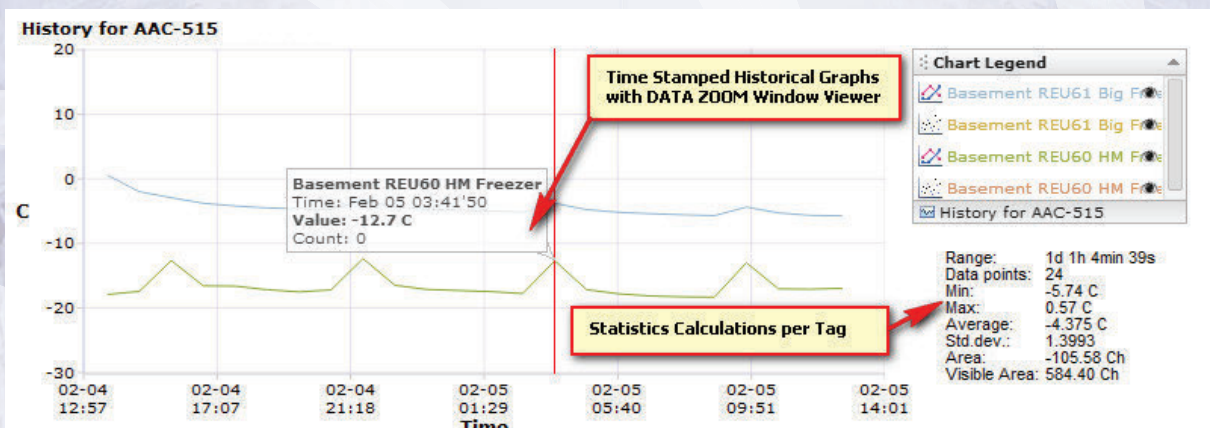
Dynamic table displays current data from multiple sensors to indicate alarm conditions associated with any given sensor. Four alarm levels can be defined per sensor by authorised users.

Alarm conditions are time stamped and added to a common system events file for further analysis.

| Input | Value | Unit | Status |
|----------------------------|--------|------|---------|
| Basement REU60 Status | 1 | | ● ● ● ● |
| Basement REU61 Status | 1 | | ● ● ● ● |
| Basement REU62 Status | 1 | | ● ● ● ● |
| Basement REU60 Box Freezer | -13.64 | C | ● ● ● ● |
| Basement REU60 Cool Room | 3.43 | C | ● ● ● ● |
| Basement REU61 Big Freezer | -5.74 | C | ● ● ● ● |
| Basement REU60 HM Freezer | -16.71 | C | ● ● ● ● |
| Basement REU61 NA Freezer | -27.94 | C | ● ● ● ● |
| Basement REU62 New Freezer | -15.05 | C | ● ● ● ● |

Data from a single or multiple sensors can be viewed according to a time span where time is modified online.

An independent Viewing window displays statistical results over the same graph time period. Data displayed in a graph can also be downloaded and saved in CSV format for further analysis.



Wireless network RF communications

Network Topology: Point to Point

Network ID: Automatic

Remote stations: 9 (max)

RF: 900MHz: 200Kbps

Radio Technology: FSHH, ISM

Antenna: 2dBi Built-In

TX Power: 900MHz 18mW

RX Sensitivity: -105dbm

Power Supply

External: 12VDC 1A (power pack)

Inputs/Outputs

Local: 4xInputs + 2xDigital Outputs

Remote: 4xInputs + 2xDigital Outputs

Analogue Input: 0-5V/0-10V/4-20mA

Digital In: ON/OFF/Pulse counting

Digital Out: Relay contact 2A, 50VDC

Number of I/O: 40 (max)

Communications ports

1 x Ethernet RJ45 port

1 x Modbus RTU (Master) RS485 port, RJ45

1 x 3G/GSM modem & 2dBi antenna

1 x GPS & antenna (optional)

1 x MicroLAN local expansion

1 x RF remote expansion

General

Enclosure: UV stable IP54

Dimensions Local: 153X100X38 mm

Dimensions Remote: 100x50x30 mm

Weight: 220gr

'Cloud' Communications

Ethernet: Standard TP 10/100

Cellular: Quad frequencies 3G/GSM

GPS: 16 channels. Active antenna

'Cloud' Security

Internet traffic: UDP only

LAN risks: None. No TCP and No OS

Start-Up: Dynamic IP via DHCP

Payload Protocol: Proprietary

Payload Security: 128bits encrypted

Payload size: < 10Mb per month

Data Buffer: 4Mb non-volatile

Redundancy: Three data centres

Access: Administrator, User

Communications Security: SSL

'Cloud' Technology

I/O Sampling Rate: 1Sec

I/O Data: Raw, Scaled, Calculated

Data Logging: 10Sec-4Hr

Data Access Online: CSV, XML

GUI: Gauges, Tables, Graphs

Alerts: Email, SMS, Twitter, Voice

Alarm Conditions: 4 per input

Action on Alarm: Logical conditions

Timers: 20. Hourly, Daily, Monthly

Schedules: 20. Each with 4 intervals