24/7 Real Time Monitoring System


BioBusiness

# INSPECTOR™

## Cloud Based Monitoring System

**Inspector™ is a unique customizable system for real time monitoring based on cloud computing technology designed to be an advanced tool for data logging in any industrial, environmental and Medical application with wide varieties of applications.**
**The Inspector™ monitors external conditions and critical parameters of any sophisticated systems, Modalities, environment or facilities.**

**The cloud-based service of the Inspector™ ensures excellent performance, high data security, cost effectiveness, scalability and avoid maintenance problem.**

| Inspector™ System Components: | | |
|---|---|---|
| Customizable hardware based on customers' needs can monitor Electrical and environmental parameters. | Internet connection Through Ethernet (ADSL, 3G, WI-FI) | Cloud-based application Accessed through (Mobile, Tablet, PC, and Laptop). |

| Inspector™ Applications: |
|---|
| Healthcare facilities & Blood banks. |
| Medical Equipment (MRI, CT, X-Ray, PET CT..) |
| Food industries. |
| HVAC Systems. |


*** Internet Connectivity Provided by the Customer**

# Monitoring Parameters:

## Electrical Power Monitoring

### Preventive and Predictive maintenance:

- Identify sources and frequency of any power line events.
- Store the precise timing of events
- Develop maintenance schedules based on trend analysis.

### Decision-making support and mitigation plan:

- Monitor, trend and conditions.
- Analyze Interruption, voltage sags, voltage swell and many power parameters.
- Make decisions based on documented trends via our reporting service.

### Benchmarking and Dash boarding:

- Full access to all parameters online.
- Online Alarms and statistics.

### Electrical Power Monitoring Parameters:

1- Three Phase Voltage measurements
2-Power Line Frequency
3- Three Phase Current measurements
4-Voltage Imbalance
5- Ground to neutral voltage
6- Ground Current
7- Ground Resistance, Line Impedance, Loop Impedance
8- Status of Main Input Power
9- UPS Status (Survive or not)
10-Power Events Detection According to IEEE classification of power quality (IEEE Std 1159™-2009) which includes:

1- Voltage Sags
2- Voltage swells.
3- Interruptions.
4- Over voltage.
5- Under voltage.

# Enviromental Conditions Monitoring

Any type of environmental sensors can be interfaced to inspector™ Hardware through our customization process. After this customization plug and play your sensor. The inspector™ Hardware can interface to any types of sensors based on customer needs.

## Temperature Monitoring

Inspector™ Hardware provides a complete solution to your Air or water temperature data logging needs and applicable to add more sensors and probes (Up to 128 sensor).

## Humidity Monitoring

Inspector™ Hardware provides an advanced humidity monitoring system in an environment or cold chain application and in another area of concern with wide varieties of applications.

## Air Quality Monitoring :

Inspector™ Hardware interface directly air quality sensor to measure the quality of indoor air and ensure the safety and comfort of workers in commercial and industrial environments.

# Inspector™ Cloud Service:

**Inspector™** Cloud service is a web-based interface to collect, analyze, store and export all data from each inspector Hardware connected to the cloud.

## 24/7 Online Monitoring

**The Inspector™** Cloud service provides you with notification, advanced reporting,and analysis at anytime, anywhere.

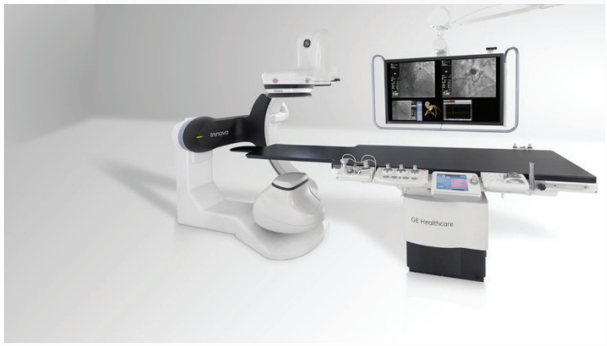
## Immediate Notification

**Inspector™** Cloud service designed to send immediate notification via SMS and E-mail to predefined distribution list at any time with changes occurs at any all monitoring locations.

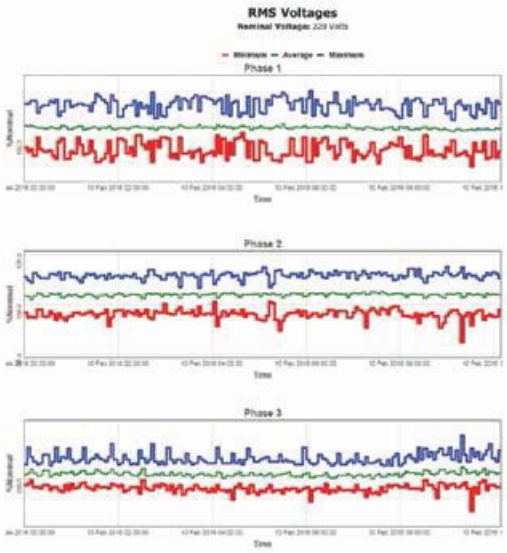
## Data Saving, Working Offline

In case of internet connection failure, Inspector™ Hardware Continue monitoring and saving data offline for max 96 hours, either connection returned back, Inspector™ Hardware restores saved data back to the cloud which can reviewed and analyzed anytime and from anywhere.

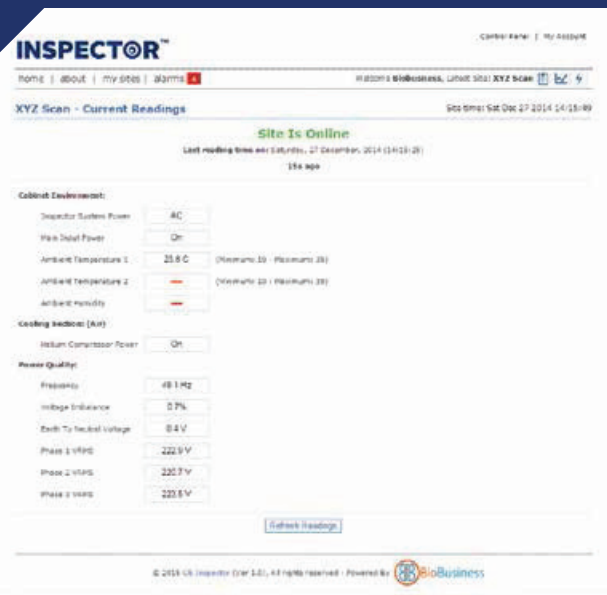
| Inspector™ Cloud Service Features Summary: |
|---|
| • 24/7 online monitoring. |
| • Immediate notifications via SMS and Email |
| • Generate eleven different types of power quality statistics over a certain period of time. |
| • Review power quality events within a specific period of time. |
| • Trend reports to predicting the health of the monitored machine. |
| • Review all notifications from alarm log page. |



## Generated Reports Examples

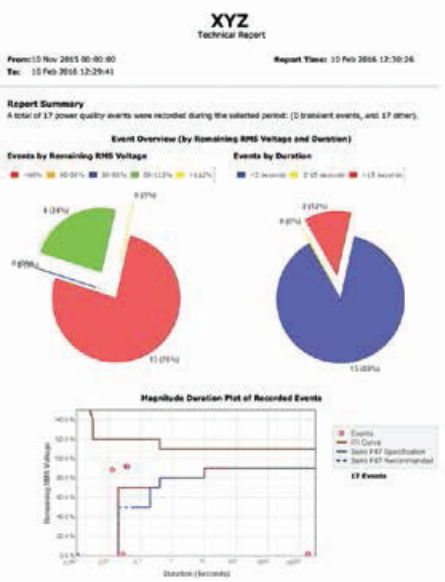



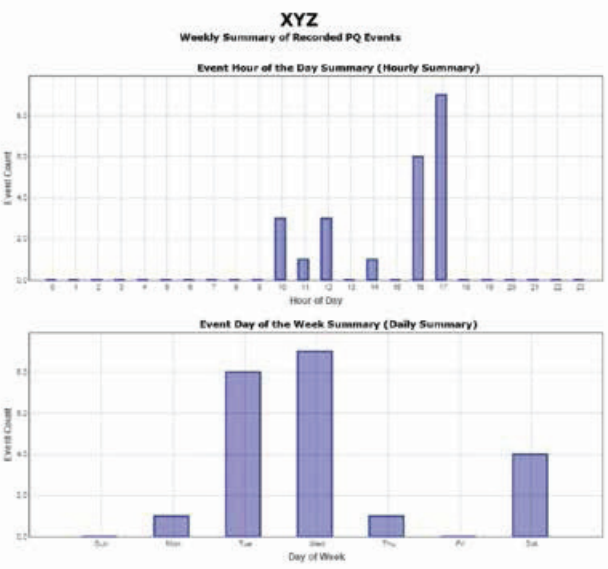

## Current Status




## Trend Reading


## Generated Statistics Examples



| Inspector™ Technical Specification | |
|---|---|
| Power Quality | |
| Standard | IEEE Std 1159™-2009 |
| RMS Voltage range | 0 : 480 VAC nominal per channel. |
| Current sensing range | 0 : 30A |
| Frequency range | A Zero crossing detection technique is implemented to measure frequency from 45 to 65 Hz |
| Voltage Imbalance | Voltage imbalance percentage |
| RTC | Real time clock is configured to report events with accurate time in milliseconds |
| Sampling rate | 8000 Sample/second |
| Measurement inputs | Three channels |
| Time synchronization | Auto clock synchronization to time server UTC using NTP protocol |
| Events | Unexpected power line events such as: (sags, swells, interruptions, overvoltage, under voltage) or events that cause device damage |
| Event trigger | Voltage deviation of ½ cycle RMS voltage (≤ 90%)? or ≥(110%)? of set nominal |
| Event details | Start and End of event is captured and reported accurately with 4 Cycles before and after. |
| Periodic RMS data logging | Maximum, Minimum and average voltage recorded for each 2 minutes period |
| Power supply and battery backup | -Line-powered from channel 1 (L1 to Neutral).<br>-Battery support with Four hour working. |
| Data storage | Storage cache for (500) power quality events and (8000) readings, cleared after automatic upload to cloud Virtually unlimited permanent event storage in Cloud server. |
| Humidity Sensor | |
| Humidity range | 0: 100% RH. |
| Humidity accuracy | 2% error. |
| Humidity resolution | 14 bit.(0.01% RH). |
| Temperature Sensor | |
| Temperature range | -40: 125 °C. |
| Temperature accuracy | +/- 0.3 °C Error. |
| Temperature resolution | 14 bit (0.01% °C). |
| Types | NTC, RTD and PT100 for water temperature can be easily added. |
| Communication | |
| Ethernet | Supported |

www.biobusiness-eg.com

BioBusiness

Head Office: 4 Al-Safwa Towers, Ellebiny St., Mariutia Haram, Giza, Egypt. P.O: 12111
Tel: (+202) 375 26 895 - Fax: (+202) 375 26 839 - E-mail: contactus@biobusiness-eg.com