

## Telecom Infrastructure Management System



### About nGen

nGen Electronics Ltd is Your M2M Solutions Expert, combining products and services as end-to-end solutions to drive business efficiencies. nGen provides the development services to help customers get to market fast with wireless devices and applications. Our entire solution set is tailored to allow any device to communicate with any application anywhere in the world.

nGen Electronics Ltd designs and manufactures products to reduce downtime and improve site infrastructure management. Products include Intelligent Remote Power Management Solutions, that provide power management via IP, branch circuit protection, input current power monitoring, environmental monitoring and serial console port access.

### BRIEF INTRODUCTION

An advanced web based service to Track, Manage and Control cell sites remotely.

RMCS Service is a solution to address the needs to monitor unmanned rural BTS sites in the network which can monitor site alarms, status, measurement, DG& energy management. This helps in managing and reducing the site downtime and OPEX of the operator drastically.

Our new revolutionary RMCS service will take the telecom sites operation to the next level. This helps to maintain the high uptime at the lowest cost.

Therefore, it is imperative to monitor various power consuming elements in their telecom infrastructure and hence this real-time monitoring service is an ideal solution.

Advanced level server at Network Monitoring Center to store data for analytical reports-

- Server level redundancy for data receive/Access
- High speed data lines for data collection
- Online access to users
- Enhanced Data management capability at server end
- Access to current status, reports of alarm, status etc.
- Auto Email, SMS for critical alarms to intended recipients
- Concurrent access to over 200 user
- Monitoring capability of 30,000 sites
- Fully secure data storage
- Online user profile management

Advanced Controller with Remote management capacity, which also include capability of managing Power system, Power management & site infrastructure-

- Built-in GSM/GPRS modem
- Built-in microcontroller hang protection
- Built-in modem hang protection
- Built-in LCD display, Keys
- Monitors Alarm parameters and faults
- Configuration through LCD/Keys
- Saving/Restoring configuration from Flash memory

## Telecom Infrastructure Management System

- Instant fault alerts through SMS
- LED indication of system status
- Secured data storage
- Data Retrieval from highly reliable server
- Store/Forward of critical data in case of connectivity problems
- Stores last 200 record in flash memory

### WHAT CAN YOU MANAGE

Every item at site you can manage, operate and monitor through online. It is an extensive management solution at lowest cost effective way. Telco site and infrastructure can be operated, managed and monitored in a cost effective way.

Management of sites includes-

- DG Operations Management
- DG Fuel Management
- Temperature Management by FCU and Aircon
- Commercial Power Management
- Storage Battery Management
- Environmental factors such as water, fire, smoke management
- Site Access Management
- Site Asset Management

### ONLINE REAL TIME DATA AND ALARMS

The following major data and alarms can be monitored online through remote PC -

- DG status
- FCU status
- Aircon status
- Mains status
- Real time fuel storage amount
- DG run hour
- DG Fault
- DG Fuel Consumption
- Indoor and Outdoor Temperature
- Battery Voltage
- DG fuel refilling
- BTS Energy Consumption
- Battery Charging
- Battery ambient Temperature
- Battery Cell Voltage
- Door Opening
- Water/Door/Smoke/Temperature Alarms

### CHALLENGES TO SITE MANAGEMENT

#### Operation's Cost

- ✓ CAPEX Reduction
- ✓ OPEX Reduction
- ✓ Cost Visibility & Control
- ✓ Cost Tracking / Allocation

#### Network Availability

- ✓ Quality of Service
- ✓ Real Time Data Collection
- ✓ Actionable Intelligence
- ✓ Remote Management

#### Sustainability

- ✓ Low OPEX / Low Maintenance
- ✓ Long Term Sustainability
- ✓ Intelligence & Automation
- ✓ Operational Excellence

### KEY FACTORS FOR SITE MANAGEMENT

#### Return on Investment

- ✓ Quick
- ✓ Low CAPEX
- ✓ Sustainable solution

#### Technology

- ✓ Modular
- ✓ Carrier Grade
- ✓ Result Oriented

#### Telco Expertise

- ✓ Infrastructure Issues
- ✓ Processes
- ✓ Standards

#### Delivery

- ✓ Rapid Deployment
- ✓ Project Management
- ✓ Customization

#### Support

- ✓ Analysis & Improvement
- ✓ Quick Resolution
- ✓ Results Focused

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## BENEFITS

### Bring Your Remote Sites Closer to Your NOC and Service Personnel

- High transparency of network
- Monitoring and fuel supply scheduling
- Cost effective service response
- Remote troubleshooting
- Preventive maintenance

### Improve Your Site Visibility

The Site Monitoring & Control Solution from nGen enables network operators to gain full transparency of their sites.

Performance data as well as inputs from surveillance or alarm equipment are monitored by the Energy Manager installed on site. A Remote Access Server collects and processes the data of all sites, then sends alarms to the NOC and field personnel. Site data can be accessed through an easy-to-use browser web interface. The web interface is designed to meet the requirements of wireless telecommunications industries. The software allows the creation of workspaces that reflect the exact setup of equipment at each remote site. Users can have their own customized, password-protected workspace and create multiple view panels with diagrams and even geographical views on a map.

### Extensive Site Infrastructure Monitoring

The different elements of the passive network infrastructure are monitored using different sets of sensors. The data processed and transmitted includes:

- Generator
- Fuel tank
- Batteries
- Air conditioning and ventilation systems
- Environmental data
- Site alarms: door contacts, aircraft warning lights etc.
- Renewable energy sources
- Rectifiers and Inverters

The Master Controller interfaces easily with virtually any type of remote site equipment and sensors. which ensures maximum flexibility and



### Reduce Cost and Increase Site Uptime

#### Alarm Management

All the alarms of the base station site are effectively monitored and managed.

- The Master Controller has multiple inputs to connect to various alarm sensors, such as smoke detectors, door sensors, temperature probes and all alarms from different site equipment, like rectifiers or radio equipment.
- The Alarm Management can be configured to show either warnings or alarms when certain thresholds are reached or events triggered, e.g. fuel theft.

#### Remote Troubleshooting

In case of an alarm the NOC personnel can remotely analyze the exact cause of the problem. The system enables the user to access all data of the sensor readings. This allows a cost efficient response.

#### Performance Monitoring & Reporting

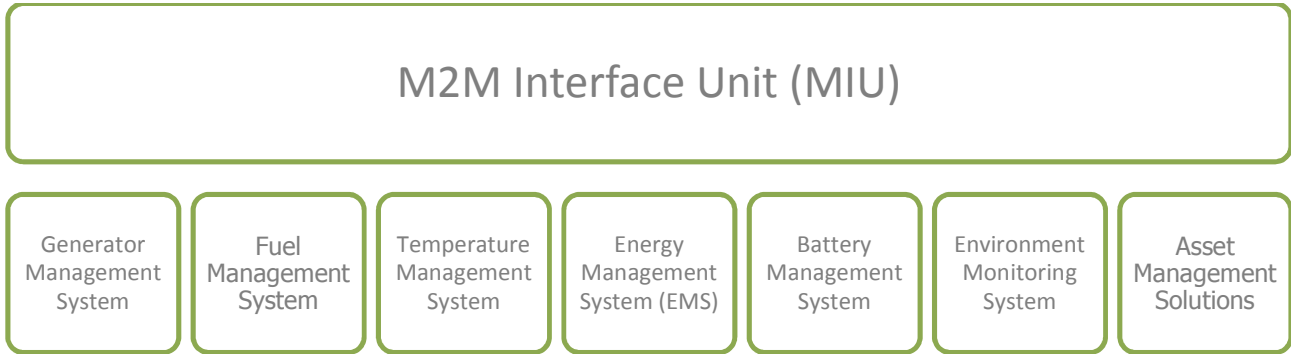
All data of the sensor readings is stored on an integrated database.

Based on this, the user can create reports, such as monthly grid availability or weekly generator failures. Reports are available in PDF, Excel, Word or Power Point format.

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## BASIC SYSTEM TO INSTALL AT SITE



## SYSTEM ARCHITECTURE

