



## Base Station Remote Monitoring & Control Solution

### The Easiest Way to Remotely Monitor & Control your Base Transceiver Station

Base Transceiver Stations (BTS) are key infrastructures on any telecommunication network as they make the interface with the mobile terminals and represent 70-80% of its total energy consumption. BTS remote monitoring and control is therefore essential to leading carriers to ensure uninterrupted communication services and to achieve operational optimization. The Greenware BTS Remote Monitoring & Control Solution provides a cost effective and easy to set up solution.

#### Solution's Benefits

- **Minimize network downtime**
- **Reduce your operational expenses**
  - Manage multiple sites from a central location and allocate resources efficiently
  - Reduce maintenance trips – go on site only when needed
  - Identify negative trends and take preventive actions to optimize operation and avoid equipment failure or breakdown
  - Early and quick response thanks to customizable alerts
  - Reduce your energy consumption via the Smart Energy Management tool
- **Reduce your capital expenses**
  - Extend the lifetime of your equipment (transceivers, batteries, generator etc.) via better maintenance and optimized environmental conditions.
  - Reduce risks of theft thanks to security and site access management tools.



Greenware BTS Remote Monitoring & Control Platform

*Illustration 1: Schematic of BTS monitoring & control solution.*

#### Solution's Features

- **Security management:** site surveillance with cameras and motion sensors triggering alarms via SMS and/or emails if unauthorized access occurs, beacon lights monitoring to ensure the visibility of the cell tower for aircrafts.
- **Site Access management:** manage staff site access via RFID readers, work time-stamp control and remotely grant access to sites.
- **Renewable energy management:** see how much energy the solar panels or wind turbines are producing.
- **Genset management:** test your Genset via the web
- **Environmental monitoring:** temperature, humidity, water intrusion, smoke and hazardous gases can be monitored to ensure operational performance and determine optimal environmental settings.
- **Fuel management:** monitor the fuel level in your tanks, fuel consumption rate, refueling alerts, refilling visits scheduling and theft detection (door contacts on the fuel cap).
- **Rectifier/battery management:** monitor the health of your batteries to identify weak cells early.
- **Energy management:** monitor when, where and how your energy is consumed to implement successful energy conservation measures.



## Our Greenware BTS Management Platform

The Greenware BTS Management Platform is an easy-to-use application that helps you monitor and control your Base Transceiver Station through a secure, personalized online web portal.

The Platform functions are:

- Real time BTS monitoring via clear and simple graphical dashboards
- System diagnostic by analyzing historical data and trending
- Customizable SMS/email/call alerts
- Multiple sites benchmarking
- Automated and manual reporting



Illustration 2: Greenware BTS Management Platform.

## Technical information

The Greenware Base Station Remote Monitoring & Control Solution includes:

### Greenware Data Acquisition Board

The Greenware Data Acquisition Board consists of various sensors (temperature, humidity, level, switches etc.) connected to data acquisition modules converting sensors signals into digital values.

### GW3300 Smart Meters

GW3300 Smart Meters (cf. picture 1) are designed for single and three phase power monitoring. They provide a wide range of measurements including current, voltage, power, power factor, watt-hour, frequency etc. Their built-in RS485 interface can easily be integrated into most third party SCADA systems. The DIN 96\*96 standard compact size enables the GW3300 to be easily installed. Robust and cost effective, the GW3300 is the ideal choice for smart power monitoring.



Picture 1: GW3300 smart meter.

### M100 3G Smart Modem

The M100 3G Smart Modem (cf. picture 2) powered by Greenware Technologies® agent is specially developed to connect Smart Meters to the Greenware BTS Management Platform over the 3G communication network (2G model also available). The Smart Modem is able to collect data from up to 16 Smart Meters via RS485 connection.



Picture 2: M1002G smart modem.

## Solution's Features

- Sensor + Data Acquisition Modules + Meter + Modem
- FTP upload
- CSV format
- User selectable sampling format (1min-24h)
- User selectable upload interval (1min-7days)
- Data logging function (max frequency 1min)
- GPRS/EDGE,
- Compatible Modbus RTU – serial connection
- Modem CE/R&TTE/ROHS certified
- Meter IEC62053-22 Class 0.5 standard