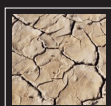


THE NEXT STEP TOWARDS A GREENER FOOTPRINT FOR YOUR NETWORK



THE NEED



Whether in an urban or rural environment, BTS's are expected to work on a 24x7x365 basis. While modern equipment is designed with this kind of performance in mind, their supportive infrastructure usually doesn't enjoy such rigorous dependability.

Air conditioners, for example, are there to maintain an ideal working temperature but if they fail, they can do more harm than good. The same holds true for mains power, batteries, standby generators and their fuel usage. They all exist to provide a working infrastructure until they fail.

Last but not least is the question of responsibility and responsiveness. Given that every key aspect of every BTS will be monitored and reported on, who will be responsible for actually doing something about the thousands of "alarm" conditions that can (and will) arise from normal operation?

THE SOLUTION



What's needed is an intelligent approach to BTS alarm and equipment status monitoring that takes into account the key factors that contribute to an effective BTS supportive infrastructure and that can do something about rectifying problems without recourse to human intervention until absolutely necessary. In this way, problems can be addressed timeously and without imposing an unrealistic workload on human supervisors.

Sam

Site Asset Management

SAM is a highly cost-effective BTS monitoring and control system designed to assist you to get the most from your costly GSM network assets. One way to do this is through sustained traffic density resulting from the early detection and rectification of equipment and infrastructure failure before they become service-affecting.

SAM is designed for remote operation and central reporting while it will also assist technicians on site by reducing the amount of time they have to spend on commissioning, maintenance and fault diagnosis.

SAM was also designed to be flexible and future-proof by being able to be configured to address the varying requirements of most BTS sites. As such, some of the systems capabilities include:

System Capabilities:

• Environmental

- o Intelligent monitoring and regulation of cabin temperature and humidity.
- o Intelligent monitoring and control of air conditioning system.
- o Intelligent free-cooling ventilation system.
- o Air conditioning socket continuity testing - detects unplugged leads.

• Power

- o Generator monitoring and control.
- o Generator bulk fuel tank capacity monitoring.
- o Utility Pre-paid credit token management.
- o Utility Post-paid power consumption management.
- o Battery bank supply voltage monitoring, both 24Vdc or 48Vdc.
- o Battery bank temperature monitoring.
- o Battery charge and discharge current monitoring.
- o Monitoring of utility or generator Mains, Phase and Frequency supply input.
- o Intelligent generator and air conditioner control through EPCC mode (energy power conservation control).

• BTS Infrastructure

- o An adjustable current monitor is used to detect Aircraft warning light failure (threshold could be set to detect even a single globe failure).
- o Operation with Inala System's B-MON bay level auto calibrator and VSWR monitor for 900 MHz and 1800 MHz GSM systems.
- o Multiple analogue and digital alarm input and control functions.

• General

- o Password protection on all applications - Alarm and Environmental Controller.
- o RS232 serial interface for onsite control and configuration.
- o On-site or remote upgrading of SAM firmware depending on the management option.
- o On-line alarm FIFO alarm log
- o Technician diagnostic terminal for onsite configuration and commissioning
- o Events are automatically forwarded to the management platform from each site depending on the management option chosen.

Management option features

• Remote management Options

- o Remote management through GSM SMS messaging or GPRS connectivity
- o Remote management through TCP-IP or E1 connectivity

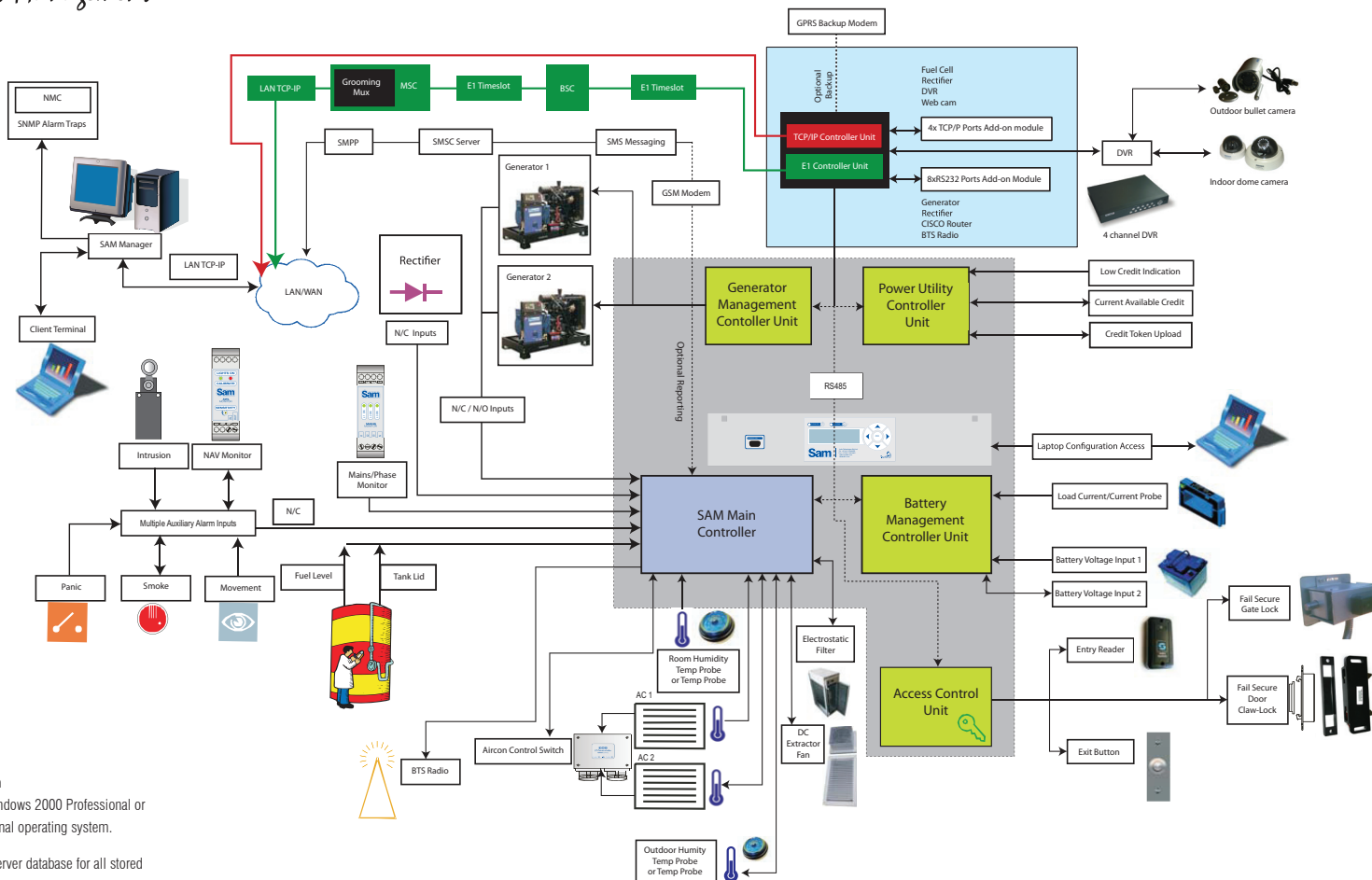
• Common features to all management options:

- o Connectivity to the SAM unit.
- o Near real time management of remote cellular BTS assets
- o Ability to remotely reset the generator AMF panel, during fault condition
- o All activity (alarms, events, analogue values) are entered into a database for post analysis and statistical reporting
- o Ability to enter additional information manually to the database:
 - Invoiced fuel amounts per site (statistical comparison to system measured values)
 - Technician call-out incidents
 - Maintenance activities and inventory control
- o Graphical user interface automatically updated upon receipt of event
- o Geographical map overlay of monitored region
- o Various automated or customized reports based upon database information:
 - Alarms per site, date, time, set or clear
 - Alarms critical versus alarms non critical, per site, region, date, time
 - Generator fuel consumption, per site, region, date
 - Fuel siphoning per site, region, date, time
 - Fuel billing per site, region, date, time
 - EPCC activation per site, region, date, time
 - Free cooling activation per site, region, date, time
 - Temperature and humidity during free cooling per site, date, time
 - Air conditioning total run time per site, date, time
 - Generator total run time per site, date, time
- o Audit trail of all user activity
- o Multiple simultaneous client terminal access
- o Multi-layer password protection by users belonging to pre-defined user groups
- o User groups created for viewing rights and user group configuration rights
- o User friendly methodology of data analysis
- o Generator service interval notification
- o Air conditioner service interval notification

• Exclusive TCP-IP or E1 connectivity features

- o Access control with entry and exit log function
- o Auto arm and lock function associated with bypass and un-bypass of intruder and movement sensors.
- o Connectivity to rectifiers, generator AMF panels, fuel cells, BTS Radio, digital video recorders and web cameras.

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Uses Microsoft SQL Server database for all stored configuration, event and alarm data.

SAM PRODUCT LINE:

SAM1.5

Standard SAM 1.5 REC unit without remote management (excludes generator, fuel, battery bank management).

- ECS1.5 - Standard SAM 1.5 REC unit with E1 Timeslot remote management option
- ITMS 1.5 - Standard SAM 1.5 REC unit with TCP/IP remote management option

SAM2

Standard SAM 2 unit without remote management (includes generator, fuel, battery bank management).

- ECS2 - Standard SAM2 unit with E1 Timeslot remote management option
- ITMS2 - Standard SAM2 unit with TCP/IP remote management option

Inala Technologies (Pty) Ltd. company's core competency lies in electronic engineering as applied to the telecommunications, GSM, avionics, broadcast and electronic design and maintenance industries.

Inala distributes and supports equipment and solutions from leading manufacturers and suppliers in these domains and contributes high-tech equipment of its own design and manufacture to this comprehensive portfolio.

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