

Sam

Site Asset Management

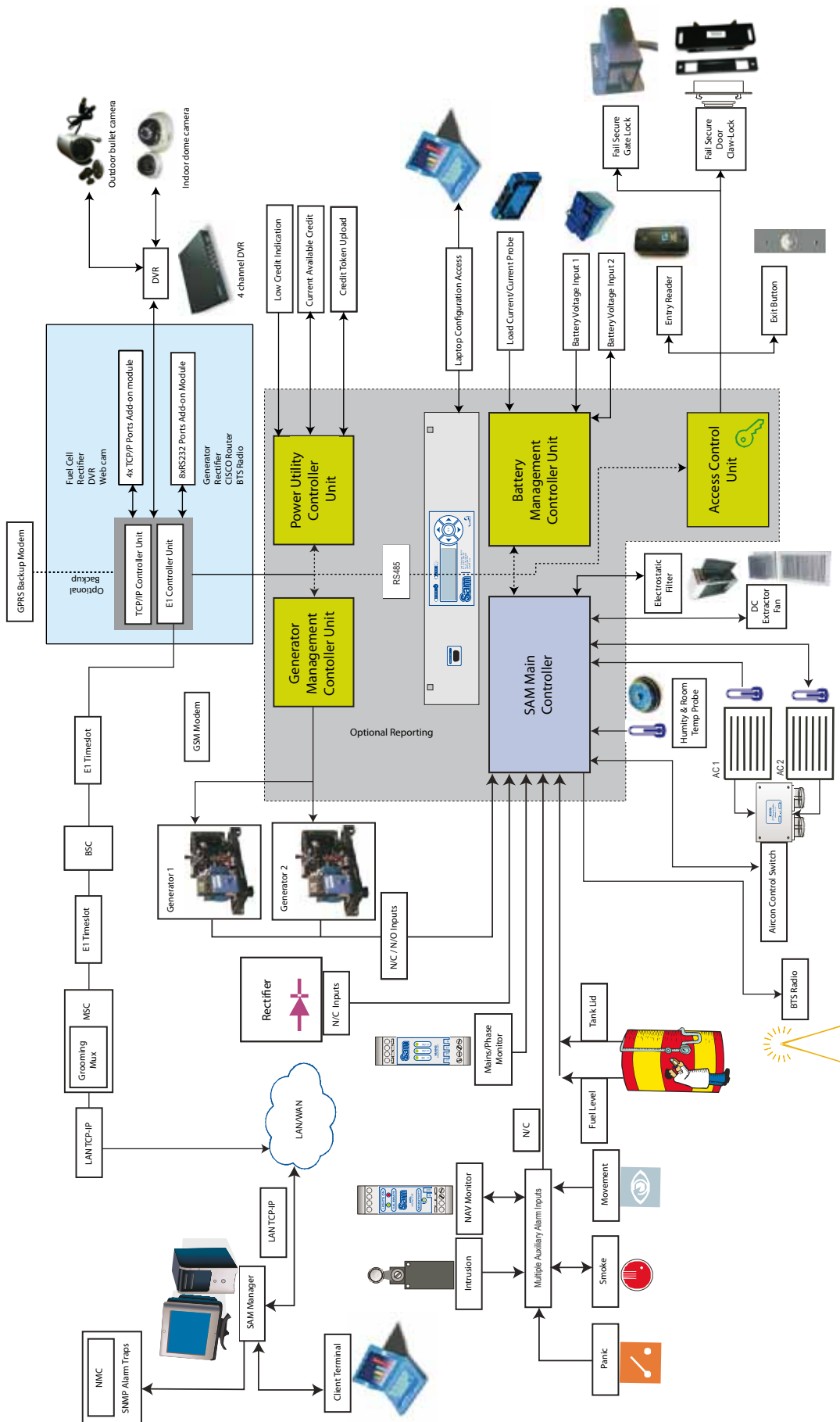


Management of remote cellular base stations becoming a problem?

SAM is designed to help optimize utilization of expensive infrastructure such as utility power, generators, security including video surveillance and environmental cooling through reducing unnecessary operation by intelligently saving operational apex costs.

The SAM unit supplies an end-to-end ip communications channel with the BTS site, through the E1 circuit connected to the BTS site, thus providing a direct LAN/WAN connection to subscriber equipment. Optionally SAM could supply end-to-end communications with the BTS site, through the use of a GSM modem, using a GPRS connection to a SMSC server and alarm messaging following a SMPP protocol.

NETWORK MANAGEMENT - E1 COMMUNICATIONS



ECS is a communication device with the purpose of managing and monitoring the remote cellular BTS sites.

The ECS consists of an E1 Controller unit, SAM unit and Access Control unit. The ECS is totally modular and would include all or any one of the modular units, depending on the application it will be used for.

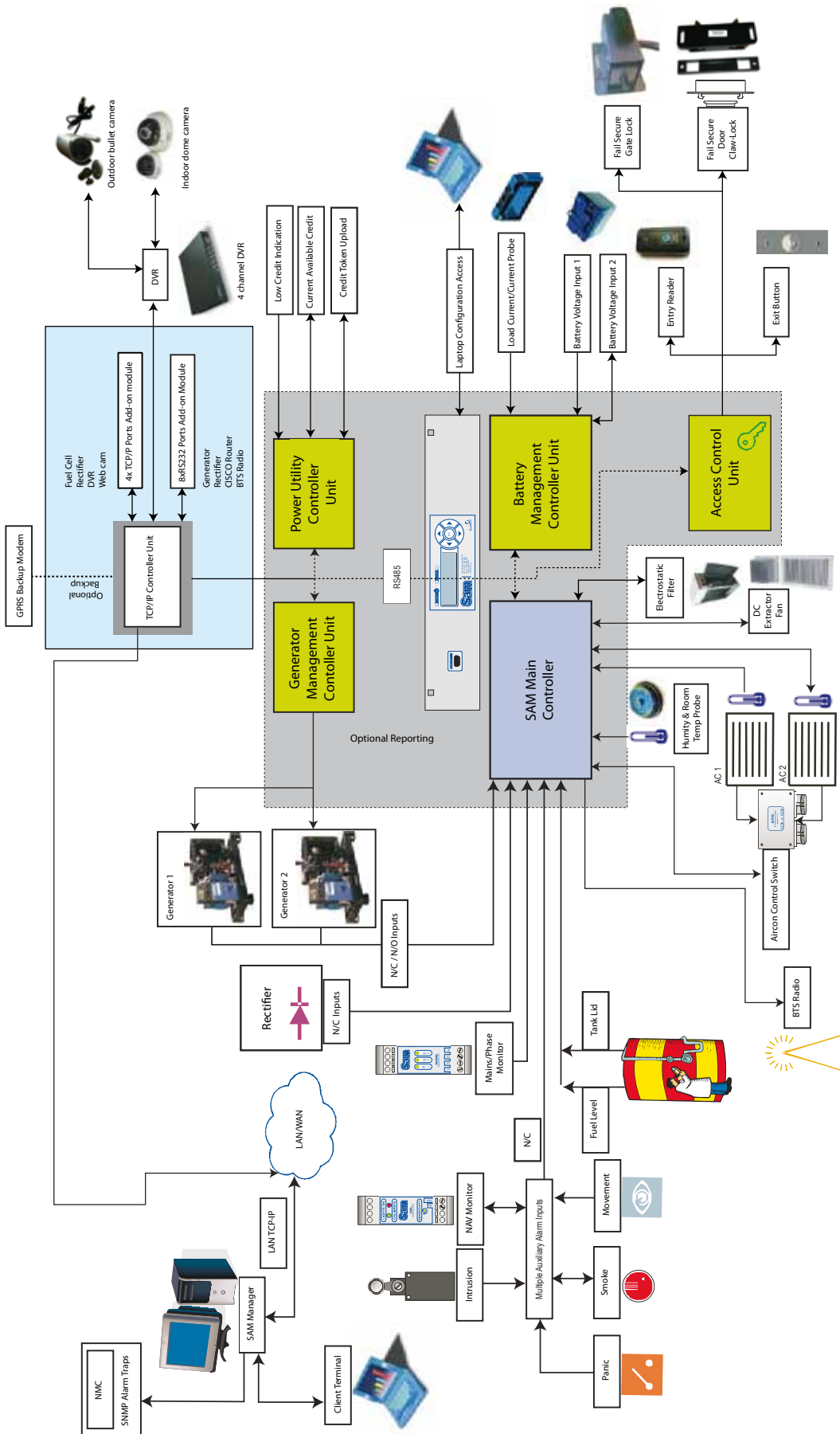
E1 Controller is installed intrusively in the E1 circuit that links the BTS with the BSC. Communication to and from the BTS is done through a dedicated, single or more timeslots within the e1 circuit feeding the BTS. The E1 Controller performs a drop and insert function, within the designated timeslots, which are all user configurable.

The E1 communications control unit consists of a PCB with multiple network communications options for the purpose of remote BTS site asset management from a central management platform. A combination of these ports and the interaction of each, determines the operation and functionality of the unit.

The SAM unit is used for Environmental monitoring and control and can be accessed via internal RS485 port of the E1 controller unit for management purposes. The SAM has 24 General Purpose Alarm inputs and 24 Optocoupler P-N Transistor outputs (for BTS alarm interface) and 7 relays.

The Access Control unit is used to manage access to a site. It uses a 32bit wiegand interface reader to identify, and log access events. Used with a choice of a Fail Secure Claw Lock or Fail Safe Magnetic Claw lock will be energized on a valid access. The Access Control unit can be accessed via internal RS485 port of the E1 controller unit for management purposes. ECS is a communication device with the purpose of managing and monitoring the remote cellular BTS sites.

NETWORK MANAGEMENT - ITMS COMMUNICATIONS



ITMS is a communication device with the purpose of managing and monitoring the remote cellular BTS sites.

The ITMS consists of a TCP/IP Controller unit, SAM unit and Access Control unit. The ITMS is totally modular and would include all or any one of the modular units, depending on the application it will be used for.

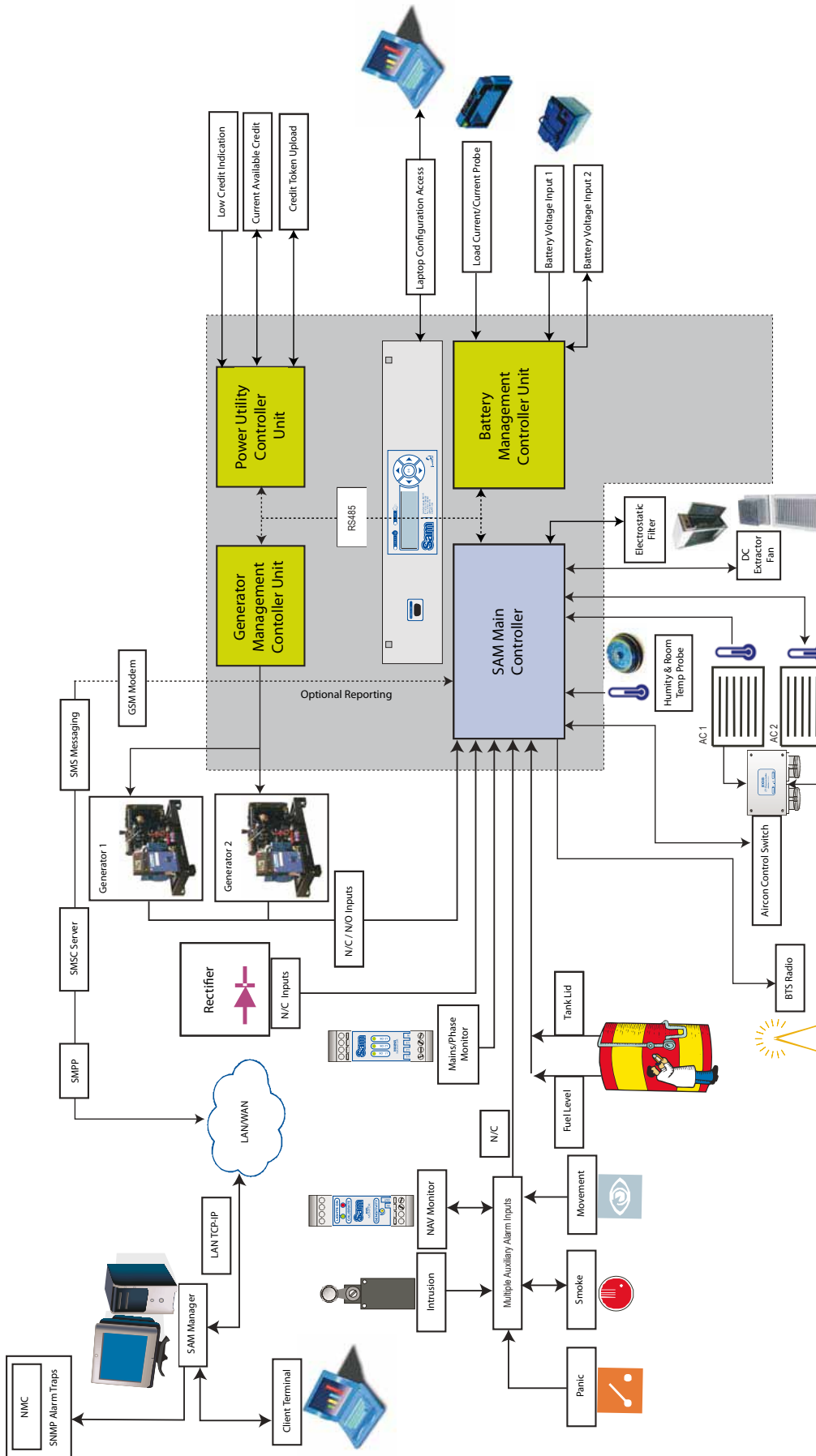
TCP/IP Controller is installed and connected to a TCP/IP port. Communication to and from the BTS is done through a TCP/IP connection. TCP/IP interface connection required is a 10 BaseT Full Duplex - 64Kbps/64Kbps.

The TCP/IP communications control unit consists of a PCB with multiple RS232 communications options for the purpose of remote BTS site asset management from a central management platform. A combination of these ports and the interaction of each, determines the operation and functionality of the unit.

The SAM unit is used for Environmental monitoring and control and can be accessed via internal RS485 port of the E1 controller unit for management purposes. The SAM has 24 General Purpose Alarm inputs and 24 Optocoupler P-N Transistor outputs (for BTS alarm interface) and 7 relays.

The Access Control unit is used to manage access to a site. It uses a 32bit wiegand interface reader to identify, and log access events. Used with a choice of a Fail Secure Claw Lock or Fail Safe Magnetic Claw lock will be energized on a valid access. The Access Control unit can be accessed via internal RS485 port of the E1 controller unit for management purposes.

NETWORK MANAGEMENT - SMS/GPRS COMMUNICATIONS



Communication Reporting Options

SAM is installed using one of the following communication mediums:

E1 Controller is installed intrusively in the E1 circuit that links the BTS with the BSC. Communication to and from the BTS is done through a dedicated, single or more timeslots within the e1 circuit feeding the BTS.

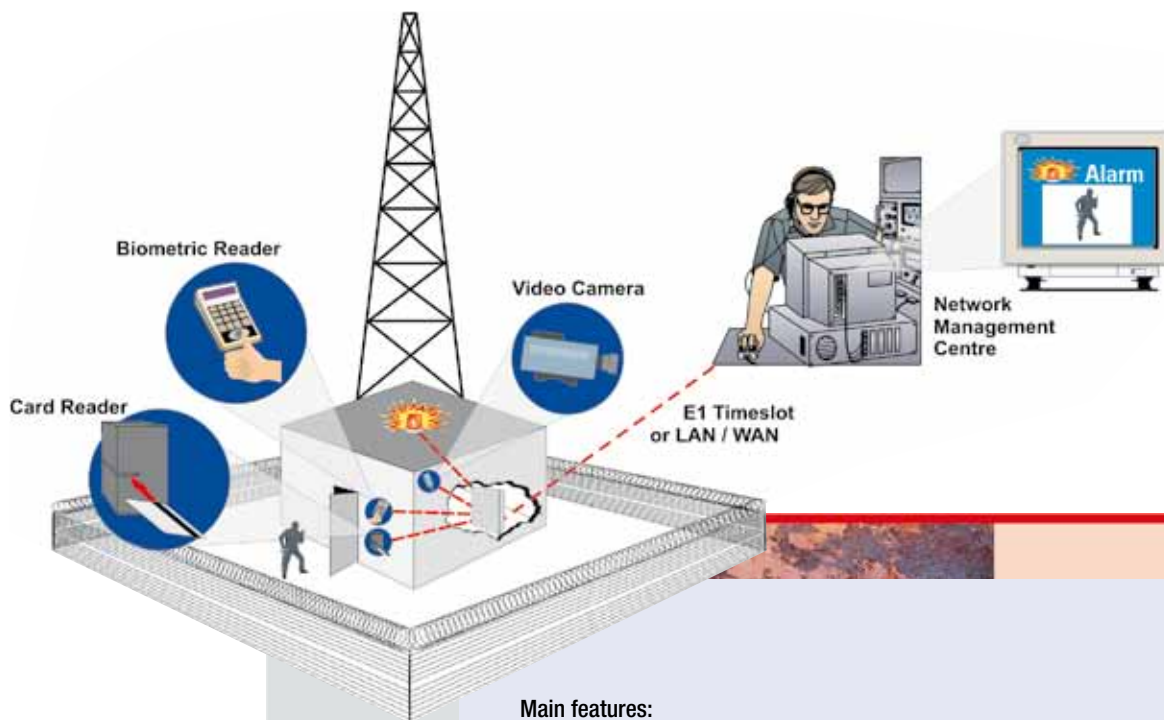
TCP/IP Controller is installed and connected to a TCP/IP port. Communication to and from the BTS is done through a TCP/IP connection.

A GSM modem that links the BTS with the SMSC and management platform using a SMPP message protocol. Communication to and from the BTS is done through a dedicated data call or SMS messages.

SMS alarm messages are forwarded to the management platform, but also multiple technicians, if required. Alarms could be categorised in different classes for individual notification.

Features

- Automatically switching to hybrid mode instead of generators
- Free Cooling – Run DC Fan instead of Aircons
- Access Control – Staff and contractors
- External Perimeter alarming – means of theft notification.
- Fuel levels and accurate consumption highlights any fuel anomalies with excessive usage – theft.
- Generator Monitoring & Control



Main features:

- Near real time management through SMS alarm and event management. Remote configuration through GSM data call connection.
- Real time management through an on-line E1 timeslot connection, by means of the e1 communications controller unit, for the purpose of alarm and event management.
- Video surveillance in conjunction with the E1 communications controller unit.
- Generator monitoring and control.
- Perimeter fence monitoring.
- Access control with entry and exit log function, including intruder and movement sensor bypass functionality.
- Various RS232 serial interface ports for secondary device management, such as rectifiers, generators and mains utility meters.
- Remote or on-site upgrading of SAM operating firmware (re-programmable flash).
- Important operating parameters (configuration data) / variables can be modified remotely.
- Management platform multi user password protection prevents unauthorized log-on, though secure user groups.

Benefits

- Preventative fault management and immediate reaction to problems, with minimum disruption to transmission
- Continuous updated view of the entire monitored network at all times
- One or more timeslots, sub-slots or SA-bits are used for management of the chain of sites
- Should the primary E1 communications medium fail, a secondary GSM path could optionally be used
- Unit failure results in the E1 circuit being bypassed with no loss to voice traffic
- The optional LAN port provides LAN/WAN network access from the BTS
- No need for optional communications infrastructure due to the use of the existing E1 circuits, thus reducing costs
- By using a timeslot or multiple timeslots, management becomes more cost effective
- Due to reduction in unnecessary site visits and call-outs it would result in a significant cost saving
- Various optional expandable interfaces are available, such as RS.232, LAN and RS.485



TECHNICAL SPECIFICATIONS

GENERAL	SAM2	E1 Controller	TCP/IP Controller	Access Control
Enclosure type	Mild steel, 19" rack mount	Mild steel, 19" rack mount	Mild steel, 19" rack mount	Mild steel, 19" rack mount
LED Information Display	Yes, alphanumeric with backlight	Yes	Yes	Yes
Control Keypad	Yes	Yes	Yes	Yes
Program Memory	64K EEPROM	64K EEPROM	64K EEPROM	64K EEPROM
Nonvolatile Config / log memory	64K EEPROM	64K EEPROM	64K EEPROM	64K EEPROM
Field Programmable (firmware upgrade) direct / remote	Yes, backup FLASH copy after download	Yes, internal reserve FLASH copy after download	Yes, internal reserve FLASH copy after download	Yes, internal reserve FLASH copy after download
Mode during firmware download	Online (full functionality)	Online (full functionality)	Online (full functionality)	Online (full functionality)
Real Time Clock / Calendar	Yes	Yes	Yes	Yes
Connectivity	High Density Plug-in connectors on rear panel, special harness to KRONE blocks	High Density Plug-in connectors on rear panel, special harness to KRONE blocks	High Density Plug-in connectors on rear panel, special harness to KRONE blocks	High Density Plug-in connectors on rear panel, special harness to KRONE blocks
Remote Monitoring / Control	Yes - telemetry, config, firmware upgrade	Yes - telemetry, config, firmware upgrade	Yes - telemetry, config, firmware upgrade	Yes - telemetry, config, firmware upgrade
COMMUNICATIONS				
Modern Connectivity	Internal (onboard) / External (RS232) - rear panel	Internal FLASH	Internal FLASH	Internal FLASH
Data Communication Port	RS232 Serial, front panel (separate from modem)	RS232 Serial, front panel configuration Port	RS232 Serial, front panel configuration Port	RS232 Serial, front panel configuration Port
RS485 Serial Interface	3 channels, half duplex	1 channel, half duplex	1 channel, half duplex	1 channel, half duplex
E1 Port	Yes	Yes	Yes	Yes
TCP/IP Port	2 x TCP/IP Ports, 10BaseT full duplex 100.0Mbps	2 x TCP/IP Ports, 10BaseT full duplex 100.0Mbps	2 x TCP/IP Ports, 10BaseT full duplex 100.0Mbps	2 x Wiegand Ports
RS232 Ports	1 x RS232 Port, Connect to 3rd party device	1 x RS232 Port, Connect to 3rd party device	2 x RS232 Port, Connect to 3rd party device	
INPUTS / SENSORS				
Digital Inputs ("dry contact") - non-isolated (Common GND)	26	2	2	4
Digital Inputs - Special (dedicated)	4 (A/C power monitoring)			
Analog Inputs 4-20mA - isolated (Common floating)	1			
Analog Inputs 0-5V - isolated (Common Floating)	No			
Analog Inputs 0-60V - isolated (Common Floating)	1			
Analog Inputs 4-20mA - individually isolated	6 Channels, using ADC expansion card			
Analog Inputs - Special (dedicated)	5 (A/C + room temperatures)			
Smoke Detector Alarm	Yes			
Smoke Detector Fault (continuity)	Yes			
OUTPUTS / DRIVERS				
Smoke Detector Power / Reset	Yes			
Optocoupler P-N Transistor outputs (for BTS alarm interface)	24, using BTS Alarm Expansion card			
Relay outputs - low current	3 x NO, NC, COM	1 x Access Control Lock override	1 x Access Control Lock override	2 x NO, COM
Relay for driving DC Fan(s)	1 x 12A			
Special (dedicated) outputs	4 x protected drivers for A/C switching			
Relay for driving DC DC Lock				1 x NO, NC, COM
GENERATOR CONTROL				
Alarm Monitoring	Yes, dedicated 8 x isolated (common floating)			
Dedicated Control Outputs	Yes, optically isolated			
Generator Start / Stop Control	"Intelligent" online / offline, communicates with generator control / monitoring module			
Fuel Level Measurement	High Resolution Digital, display in Litres			
Energy Power Conservation Control	Yes, "intelligent" control			
POWER				
Power Supply (input)	Integrated 20 - 60 V DC, Isolated (offline)	Integrated 24 - 60 V DC, Isolated (offline)	Integrated 24 - 60 V DC, Isolated (offline)	Integrated 24 - 60 V DC, Isolated (offline)
Aux power for Sensors (output)	12V, protected			
Aux power for Smoke Detector (output)	24V, protected			
Pre-paid / Post-paid Mains Utility Meter Interface	Yes, full remote control / monitoring			
Battery Monitor Interface	Yes, using RS485 interface			
ENVIRONMENTAL				
Aircon Control	Up to 4 aircons (normal / "piggy back" mode)			
Aircon Type	1-phase / 3-phase any BTU, depending on A/C switch unit used			
Aircon diagnostics	Yes			
Aircon power supply monitoring	Yes			
Aircon vent temperature monitoring	4 probes, NTC type			
Outside temperature monitoring	Yes			
Room temperature monitoring	Yes			
Humidity monitoring	Yes			
Emergency DC Fan Control	Yes			
Config Adjustable	Yes, all thresholds / times are adjustable			
ALARM REPORTING				
Remote Management	Internal GSM Modem, External RS232 and 3 x RS485 *RS485 Used for Utility Meter Management, Fuel Probe interface, E1 Communicator Interface.	E1 Port, Add on GSM Modem for backup connectivity should E1 link be down, *RS485 Used for Interface to SAM2 and Access Control	E1 Port, Add on GSM Modem for backup connectivity should E1 link be down, *RS485 Used for Interface to SAM2 and Access Control	Reporting done via RS485 to E1 or TCP/IP Controller. *RS485 Used for Interface to E1 or TCP/IP Controller
BTS direct (hard wired)	24 alarms using BTS alarm expansion card			
Alarm Routing / Combining	Yes			
GSM Reporting Configurable	Yes, individually linked to 8 different numbers			
SMS Status request	Yes, full "snapshot" update			
Active Alarm Display	Yes, on LCD display - scroll with keypad			
Alarm Trigger Delay Adjustable	Yes, individually adjustable			
Alarm Clear Delay Adjustable	Yes, individually adjustable			
Alarm Masking	Yes, individual enable / disable			
CONFIGURATION				
Setpoints / Thresholds / Options	Adjustable, stored in nonvolatile memory	Adjustable, stored in nonvolatile memory	Adjustable, stored in nonvolatile memory	Config defaults can be down loaded
Input Polarity Adjustable	Yes			
Output Polarity Adjustable	No need, use NC / NO			
Input Debounce Filters	Yes, individually adjustable time constants			
Factory Default Setting Restore	Yes	Yes	Yes	
Client Specific Defaults Restore	Yes, when programmed	Yes, when programmed	Yes, when programmed	
Expandable Options Available				
RS232 Ports - add on PCB		8 x RS232 Port, Connect to 3rd party device	8 x RS232 Port, Connect to 3rd party device	
Ethernet Port - add on PCB		5 x TCP/IP ports, 10/100Mbps Full Duplex	5 x TCP/IP ports, 10/100Mbps Full Duplex	
GSM Modem - add on	Yes		Yes	
Generator Control Unit	Yes			
Utility Interface unit	Yes			
DC Navigation Light unit	Yes			
DC Battery Voltage Monitoring Inputs	4 inputs			
DC Current Charge / Discharge Monitoring Inputs	2 inputs			
Additional BTS Alarm output Module	24 outputs			
Digital Inputs ("dry contact") - non-isolated (Common GND)	24 Inputs			

The next step

Contact us today to see how SAM can contribute to your operational efficiency and sustained wealth creation.



INALA SYSTEMS

DIVISION OF INALA TECHNOLOGIES (PTY) LTD

Reg. No. 2004/007308/07 VAT No. 4770 223 784

JOHANNESBURG

Inala House, 557 15th Road, Randjespark, Midrand, South Africa

Tel: +27 (0)11 206 8300 • Fax: +27 (0)11 206 8333 • info@inala.co.za

STELLENBOSCH

Inala Cape, 1A Meson Street, Technopark, Stellenbosch, South Africa

Tel: +27 (0)21 880 2206 • Fax: +27 (0)21 880 2675 • capeinfo@inala.co.za

DURBAN

Inala Durban, Suite 1, 1st Floor, Clarence House, 9-11 Linden Road, Durban, South Africa

Tel: +27 (0)83 675 7448 • Fax: 086 677 0273 • durbaninfo@inala.co.za

<http://www.inala.co.za>

