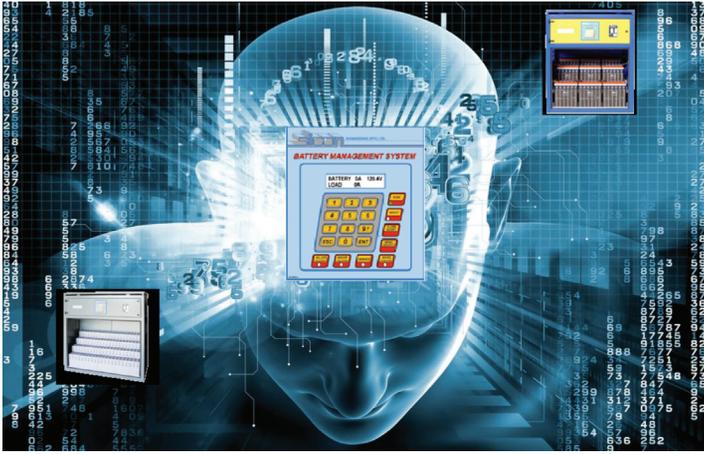# The Silicon-BMS™ – Born and bred in Africa

The Silicon-BMS™ is not just a multi-alarm module but a Battery Management System designed to cater for all the new battery technologies which became available since 1978. Born and bred in Africa, matured in the harshest of environments of deep gold mining as well as base metal mining, iron & steel, petrochemical, power generation and distribution, aviation and telecom where only the very best survive. The first Silicon-BMS™ was installed in 1989 and has developed from operational experience over the past decades. It is a mature product with many thousands in service, of which many were customer driven.

The Silicon-BMS™ was born before the advent of the mobile phone. As electrical noise and radiation became an issue, Silicon-BMS™ overcame these challenges by implementing special algorithms, similar to those used in the Cruise missiles, and secure operation under the most severe noise environments is achieved. It was known as "Survivor1" software and was introduced in 2001.

Alarms

All the different settings and charging requirements are built into the Silicon-BMS™. A changed battery type can be reconfigured in under two minutes. No wrong settings ever again.

Silicon-BMS™ can comply with virtually every charger specification. When developed, we included every feature already specified in major specifications, added with a wish list from many customers and then added some more.

Silicon-BMS™ has every alarm possible already built in. You can specify what you require or leave it to our experts to include all those features which you need.

User-friendly

Silicon-BMS™ is very easy to use. The menu structure has remained basically the same since 1989 so retraining of operators is reduced. Just press the "MENU" button and follow on-screen instructions. Keypad entry is in plain English (or a number of other languages). Silicon-BMS™ is easy to use even when you have lost the instruction manual. Silicon-BMS™ upgrades are released from time to time. The latest BMS-Elite is virtually pin-for-pin compatible with the 1989 chargers. This makes upgrading to the latest feature fast, efficient and affordable and

extends the service life of the charging installation by many years saving you money not having to replace the complete system. Upgrade kits are available or our technicians will do it for you and at the same time, retrain your operators.

Silicon-BMS™ is very user friendly. The DC earth fault alarm system not only can be calibrated to a minimum impendance to earth but the Silicon-BMS™ reports on the polarity of the fault and the actual impedance to earth of that fault. This gives your technicians invaluable information to enable them to locate the earth fault in the switchgear panels.

Communication

Silicon-BMS™ is very talkative and it comes standard with Modbus RTU protocol which you can use to connect to your SCADA system. Alternatively, we have develped an application (App) "BMS-Studio" which sorts out all the communications issues between your laptop or VPN and the charger's Silicon-BMS™. You can have full graphic details of the status of your DC system. If you want immediate advice of a problem, facilities are available to SMS up to 5 mobile numbers when an alarm arises describing the charger location, cause of the fault and the time of the fault.

Silicon-BMS™ has a good memory. The up to 2000 event recorder of everything that happens at the charger, including results of perodic load tests. These can be downloaded and saved to a file on your computer using the BMS-Studio app. This can

be submitted to your insurance company as proof of health of the DC system in the event of an insurance claim.

Economical

Silicon-BMS™ is flexible. It can be configured for a single charger, two chargers with one battery, load control dropping diodes, single or three phase supply and/or load disconnect. This makes is very economical to buy.

Silicon-BMS™ is power thrifty. When mains is off, it draws its power from the main battery. Power consumption is only a few watts when the back light is turned off to conserve power.

Periodic Load Testing and Substations

Since 1989, many specifications have changed over the years to include a number of features introduced by Silicon-BMS™ and an example is the periodic battery test where the charger is turned off and a load is connected for a short time to detect potential faults. This is done three times per day.

Redundancy

The Silicon - BMS™ has built in redundancy. The micro-processor technology used in the Silicon-BMS™ does not fire the SCR's directly. An analogue control card keeps the charger operational should the Silicon - BMS™ experience component failure. The micro-sense coded communication between the Silicon-BMS™ and the control card pulses every second to ensure synergy. Should the pulse not reach the control card, it defaults and an alarm raised.

Contact us for more information on the Silicon Engineering (Pty) Ltd chargers, NiCad or Lead Acid Batteries.

ENGINEERING (PTY) LTD

Tel: 011 474 3423 · 031 766 3368

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