



BM3000 Battery Monitoring Solution

online Monitoring for Lead Acid, lithium batteries

Why Battery Monitoring?



Never let this happen to you!

80% UPS failure are due to undetected battery problem



Time waste!! Labor cost !!

Spend a lot of maintenance time & Expensive test cost



Which? When? Why?

When battery will have problem? Which one should replace? Why?

BM3000 Battery Monitoring

Today, it has become obvious to users that battery performance cannot be taken for granted. The cost of failures makes the cost of monitoring seem insignificant, especially in large data center applications where even a momentary power glitch to the computers can equate to many millions of dollars in losses. It is very essential to manage & store the history data and report of UPS battery in time.

For this purpose, Relat Technology have launched an advanced BM3000 battery monitoring system, which can help users to master the single battery status like voltage, temperature, resistance, etc. BM3000 battery monitoring system is your best choice for the last defensive line of data center security..

What benefit to use BM3000?

1. Ensure the power system safety through real time monitoring and better plan preventive maintenance instead of emergency replacement, and make a plan for battery replace.
2. Reduced maintenance costs avoiding the weak battery infect, and prolong the battery life.
3. Increased safety on site as back-up power remains always available and less human presence is required in the battery room.

BM3000 Hardware

Each BM3000 hardware consist of one unit Control Module, a couple units Battery Sensor and Current Detector.
R Sensor monitors individual battery internal resistance, voltage and battery temperature.
I Sensor monitors battery string current, voltage and ambient temperature
CM collects and processing the measurement data from sensors, and transfer them to a PC
BM3000 Battery Management Software for PC is use for battery remote monitoring and management

Battery Sensor / R Sensor / BM3KRS-D

- Modular Level battery monitoring. 1 cell requires for 1 unit R-Sensor
- Measures the individual block voltage, internal resistance, temperature
- Voltage Measure Range from 1.5V to 5V & 5 V to 18V
- Max. Power Consumption is 26 mA
- Sleeping Mode power consumption will less than 1 mA
- Power Supply is 2 VDC, 6 VDC, 12 VDC from the battery
- 3M Tape to stick on the clean surface of battery
- Enclosure made from flame retardant material



Current Detector / I Sensor / BMOOIS-1-24

- One battery string/bank require for one unite I-Sensor
- Measures string current in real time
- Tie-in use with current transducer (CT)
- Current measure range from 100A to 3000A
- Ambient Temperature Probe
- Enclosure made from flame retardant material
- Power Supply is 24 VDC



Control Module / CM / BMOOCS

- 4.3 inch LCD display & smart keypad & 32 MB Memory
- Live show battery measuring data
- Analysis and storage the measuring data
- View historical data and alarm record
- Blinking red Led and buzzer warning upon the alarm
- Permission setting in system configuration menu
- RS232, RS485 and Ethernet communication Port
- Provide BMS software for remote viewing and management
- Software allow to installed on multiple client computer
- Open Modbus protocol allow to connect the 3rd part software
- Power Supply is 24 VDC.
- Wall Mounting Installation



BM3000 Wiring

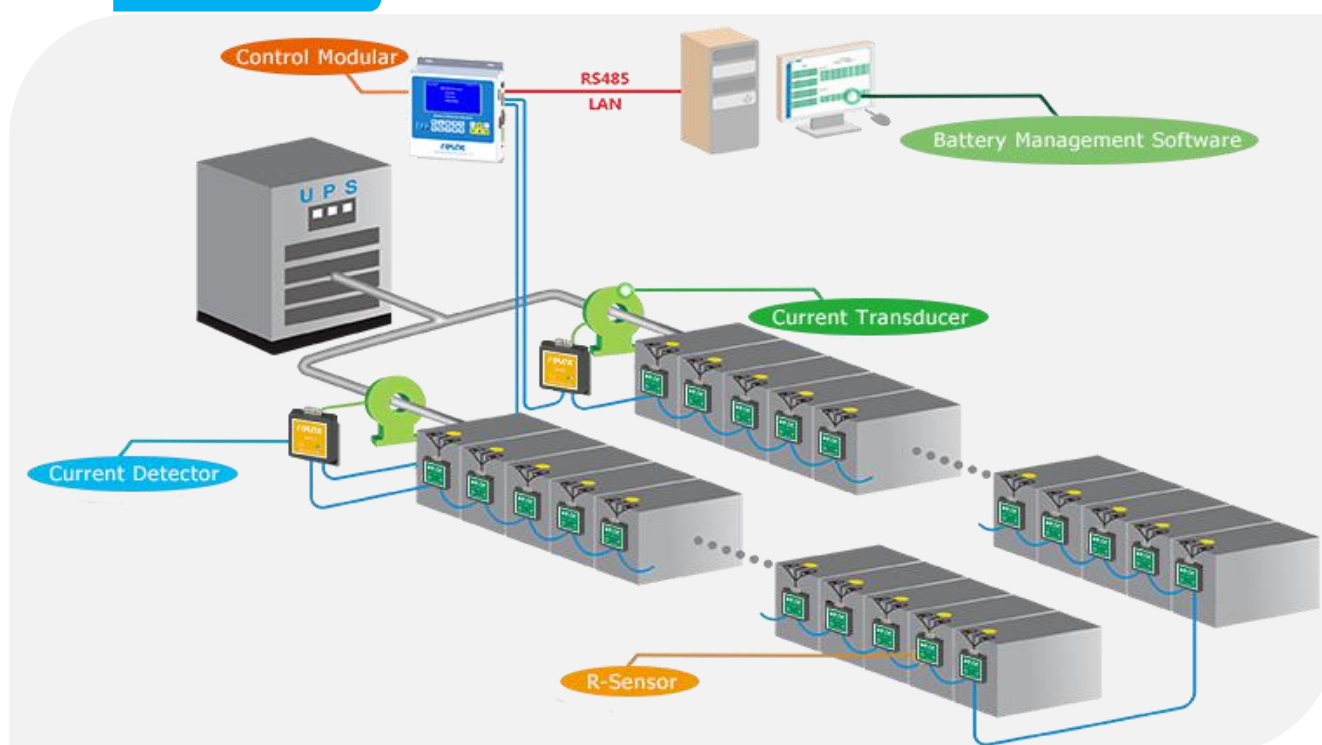
Monitoring Parameter

Monitoring Parameter	Model	BM3KRS	BM00IS	BM3HVS
Individual Block Voltage		✓		✓
Individual Block Internal Resistance		✓		
Individual Block Temperature		✓		✓
Bank (String) Voltage		✓		✓
Bank (String) Current			✓	
Ambient Temperature			✓	

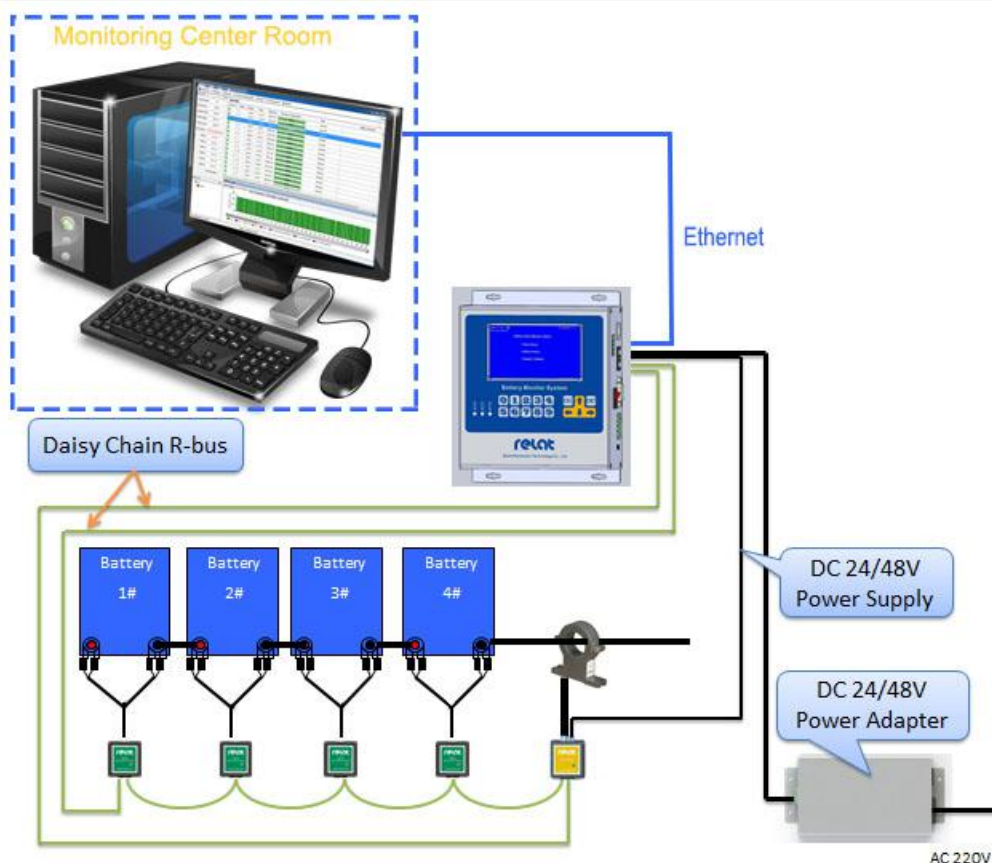
Application

- a. Standby VRLA and flooded batteries
- b. UPS: Data Centers, hospitals, air traffic control
- c. Railway and trackside equipment
- d. Telecom DC system and infrastructures (mobile)
- e. Power generator& distribution
- f. Critical production process plant (semiconductors)

BMS Wiring



BM3000 Accessories List

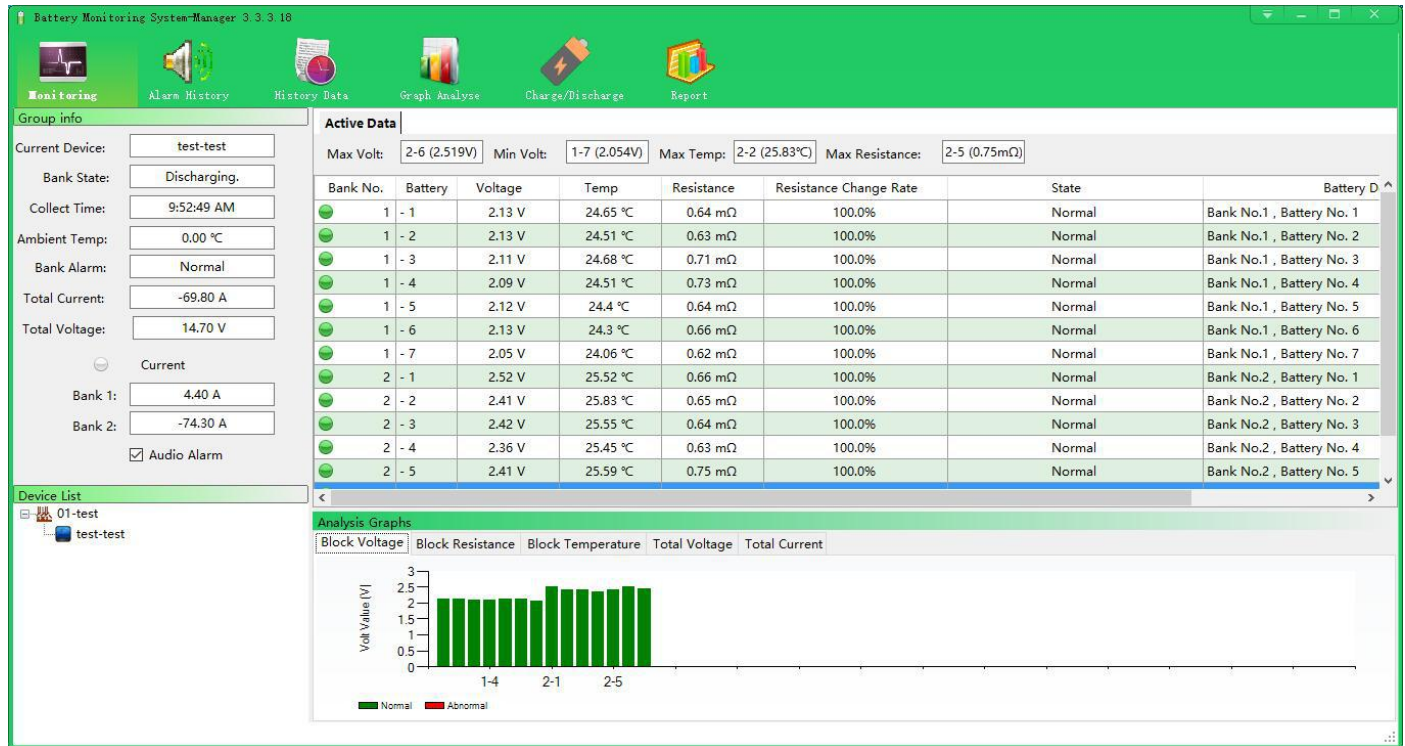


BM3000 BMS will be supplied all necessary cables and accessories

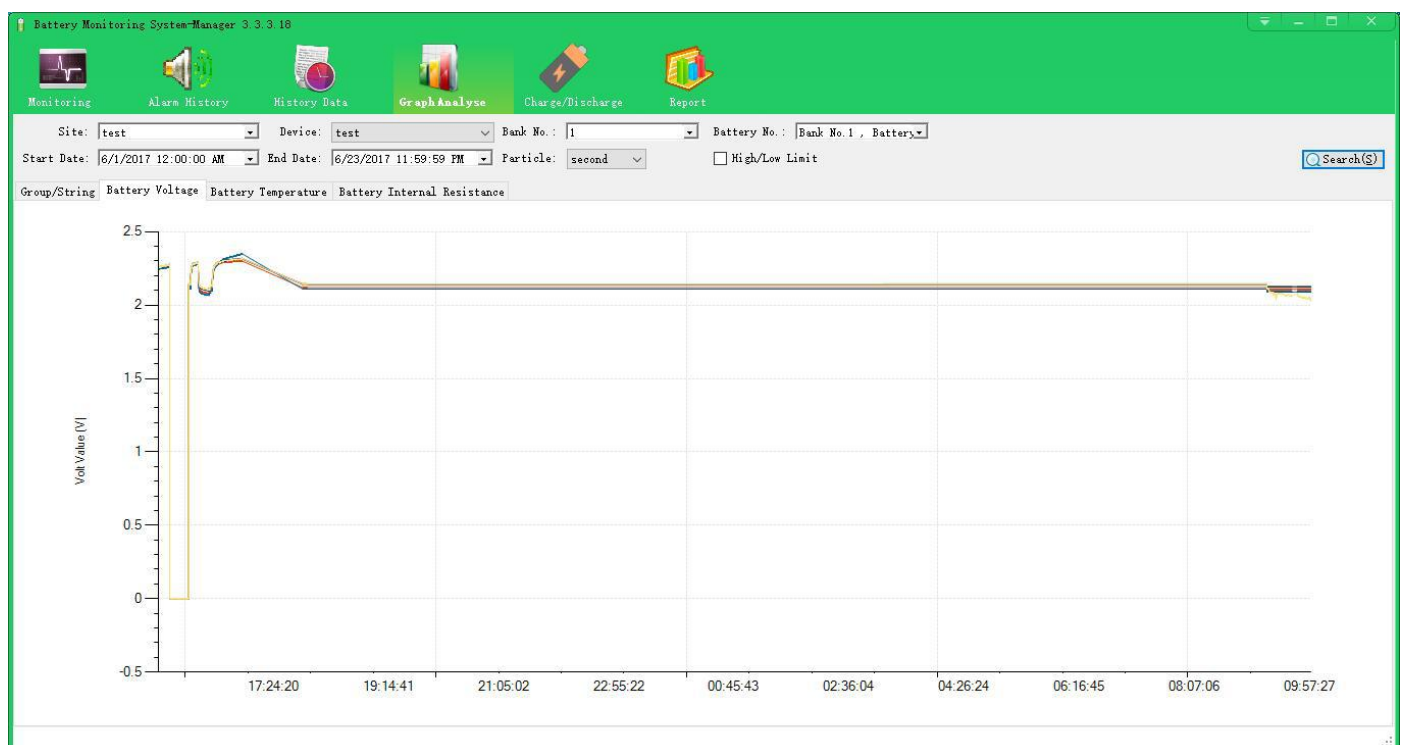
Main Equipment	Accessories each Unit
Battery Sensor	1 x Battery Cable / 4x0.5mm ² / PVC 2 x Kelvin Washer / M6 / M8 / M10 1 x R-Bus Cable / 24 AWG / PVC
Current Detector	1 x Current Transducer /100 amp to 1500 amp 1 x R-Bus Cable / 24 AWG / PVC 1 x Communication Cable / 4x0.3mm ² / AVVR 1 x DC24V Power Cable / 2x0.3mm ² / AVVR
Control Module	1 x DC24V Power Supply / Mean Well 1 x DC24V Power Cable / 2x0.3mm ² / AVVR 2 x Long R-Bus Cable / 24 AWG / PVC 1 x Metal Cabinet (Option Item)

BM3000 PC Software Screenshot

Real Time Monitoring Page



Graph Showing Page



History Data Showing Page

Battery Monitoring System-Manager 3.3.3.18

Monitoring Alarm History History Data Graph Analyse Charge/Discharge Report

Site: test Device: test Particle: second Search(S) Export(E)

Start Date: 6/1/2017 12:00:00 AM End Date: 6/23/2017 11:59:59 PM Query Type: Voltage

Collect Time	Total Voltage	Total Current	Ambient Temperature	1-1	1-2	1-3	1-4	1-5	1-6	1-7	2-1	2-2	2-3	2-4
6/23/2017 9:53:3...	14.7 V	-73.1 A	0.0 °C	2.13 V	2.13 V	2.11 V	2.09 V	2.12 V	2.13 V	2.05 V	2.51 V	2.4 V	2.42 V	2
6/23/2017 9:53:3...	14.7 V	-71.3 A	0.0 °C	2.12 V	2.13 V	2.11 V	2.09 V	2.12 V	2.13 V	2.05 V	2.51 V	2.4 V	2.42 V	2
6/23/2017 9:53:3...	14.7 V	-72.6 A	0.0 °C	2.13 V	2.13 V	2.11 V	2.09 V	2.12 V	2.13 V	2.05 V	2.51 V	2.4 V	2.42 V	2
6/23/2017 9:53:3...	14.7 V	-70.7 A	0.0 °C	2.12 V	2.13 V	2.11 V	2.09 V	2.12 V	2.13 V	2.05 V	2.51 V	2.4 V	2.42 V	2
6/23/2017 9:53:3...	14.7 V	-70.9 A	0.0 °C	2.13 V	2.13 V	2.11 V	2.09 V	2.12 V	2.13 V	2.04 V	2.51 V	2.41 V	2.42 V	2
6/23/2017 9:53:3...	14.7 V	-72.1 A	0.0 °C	2.12 V	2.13 V	2.11 V	2.09 V	2.12 V	2.13 V	2.05 V	2.51 V	2.4 V	2.42 V	2
6/23/2017 9:53:3...	14.7 V	-71.4 A	0.0 °C	2.13 V	2.13 V	2.11 V	2.09 V	2.12 V	2.13 V	2.05 V	2.51 V	2.41 V	2.42 V	2
6/23/2017 9:53:2...	14.7 V	-71.0 A	0.0 °C	2.13 V	2.13 V	2.11 V	2.09 V	2.12 V	2.13 V	2.05 V	2.51 V	2.41 V	2.42 V	2
6/23/2017 9:53:2...	14.7 V	-71.6 A	0.0 °C	2.13 V	2.13 V	2.11 V	2.09 V	2.12 V	2.13 V	2.05 V	2.51 V	2.41 V	2.42 V	2
6/23/2017 9:53:2...	14.7 V	-71.8 A	0.0 °C	2.13 V	2.13 V	2.11 V	2.09 V	2.12 V	2.13 V	2.05 V	2.51 V	2.41 V	2.42 V	2
6/23/2017 9:53:2...	14.7 V	-73.5 A	0.0 °C	2.13 V	2.13 V	2.11 V	2.09 V	2.12 V	2.13 V	2.04 V	2.51 V	2.41 V	2.42 V	2
6/23/2017 9:53:2...	14.7 V	-70.6 A	0.0 °C	2.13 V	2.13 V	2.11 V	2.09 V	2.12 V	2.13 V	2.05 V	2.51 V	2.4 V	2.42 V	2
6/23/2017 9:53:2...	14.7 V	-74.4 A	0.0 °C	2.13 V	2.13 V	2.11 V	2.09 V	2.12 V	2.13 V	2.05 V	2.51 V	2.41 V	2.42 V	2
6/23/2017 9:53:1...	14.7 V	-70.3 A	0.0 °C	2.13 V	2.13 V	2.11 V	2.09 V	2.12 V	2.13 V	2.05 V	2.51 V	2.41 V	2.42 V	2
6/23/2017 9:53:1...	14.7 V	-72.4 A	0.0 °C	2.12 V	2.13 V	2.11 V	2.09 V	2.12 V	2.13 V	2.05 V	2.51 V	2.41 V	2.42 V	2
6/23/2017 9:53:1...	14.7 V	-74.4 A	0.0 °C	2.13 V	2.13 V	2.11 V	2.09 V	2.12 V	2.13 V	2.05 V	2.51 V	2.41 V	2.42 V	2
6/23/2017 9:53:1...	14.7 V	-71.4 A	0.0 °C	2.13 V	2.13 V	2.11 V	2.09 V	2.12 V	2.13 V	2.05 V	2.51 V	2.41 V	2.42 V	2
6/23/2017 9:53:1...	14.7 V	-73.7 A	0.0 °C	2.13 V	2.13 V	2.11 V	2.09 V	2.12 V	2.13 V	2.05 V	2.51 V	2.41 V	2.42 V	2
6/23/2017 9:53:1...	14.7 V	-72.0 A	0.0 °C	2.13 V	2.13 V	2.11 V	2.09 V	2.12 V	2.13 V	2.05 V	2.51 V	2.41 V	2.42 V	2
6/23/2017 9:53:1...	14.7 V	-71.1 A	0.0 °C	2.13 V	2.13 V	2.11 V	2.09 V	2.12 V	2.13 V	2.05 V	2.51 V	2.41 V	2.42 V	2
6/23/2017 9:53:1...	14.7 V	-73.7 A	0.0 °C	2.13 V	2.13 V	2.11 V	2.09 V	2.12 V	2.13 V	2.05 V	2.51 V	2.41 V	2.42 V	2
6/23/2017 9:53:0...	14.7 V	-71.1 A	0.0 °C	2.12 V	2.13 V	2.11 V	2.09 V	2.12 V	2.13 V	2.05 V	2.51 V	2.41 V	2.42 V	2

Page Size: 60 records, Total: 4571 records, Page: 1/77

Charge/Discharge Showing Page

Battery Monitoring System-Manager 3.3.3.18

Monitoring Alarm History History Data Graph Analyse Charge/Discharge Report

Result Search

Start Time Finish Time

6/23/2017 9:4...
6/23/2017 9:1...
6/22/2017 3:3...

Site: test Device: test Particle: second Search(S) Export(E)

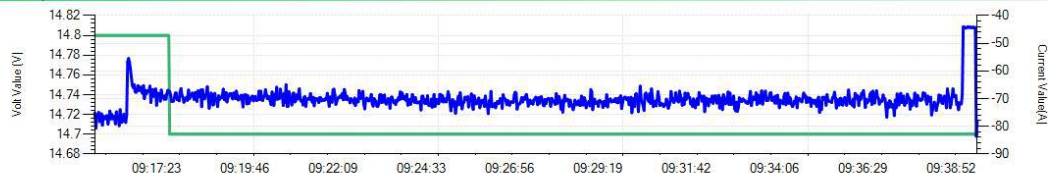
Start Date: 6/1/2017 12:00:00 AM End Date: 6/23/2017 11:59:59 PM

Battery Group & Bank details.

Device Name	Total Voltage	Total Current	Ambient Temperature	Bank Current 1	Bank Current 2	Collect Time
test	14.7 V	-78.1 A	0.0 °C	5.3 A	-83.5 A	6/23/2017 9:39:34 AM
test	14.7 V	-83.6 A	0.0 °C	5.4 A	-89.0 A	6/23/2017 9:39:33 AM
test	14.7 V	-44.3 A	0.0 °C	5.4 A	-49.7 A	6/23/2017 9:39:31 AM
test	14.7 V	-44.4 A	0.0 °C	5.4 A	-49.8 A	6/23/2017 9:39:30 AM
test	14.7 V	-44.2 A	0.0 °C	5.4 A	-49.6 A	6/23/2017 9:39:28 AM
test	14.7 V	-44.3 A	0.0 °C	5.4 A	-49.7 A	6/23/2017 9:39:27 AM
test	14.7 V	-44.3 A	0.0 °C	5.3 A	-49.7 A	6/23/2017 9:39:25 AM
test	14.7 V	-44.2 A	0.0 °C	5.4 A	-49.7 A	6/23/2017 9:39:24 AM
test	14.7 V	-44.2 A	0.0 °C	5.3 A	-49.6 A	6/23/2017 9:39:22 AM
test	14.7 V	-44.2 A	0.0 °C	5.4 A	-49.6 A	6/23/2017 9:39:21 AM

Page Size: 60 records, Total: 947 records, Page: 1/16

Analysis Graphs



BM3000 Battery monitoring system comes complete with Battery Management Software package which allows all battery systems to be monitored 7 x 24 hours via a remote computer. It allows for remote viewing and data management of all connected battery monitoring systems. Report generation, trending analysis, & detailed alarming can all be viewed on a single or multiple PC's on the same network.



relat

BM3000 BMS Install on Site



Automatic Battery Monitoring System



honor 9



BM3000 Battery Monitoring System



Keep Clean and NEAT !



BM3000 BMS Typical User List

DATA CENTER

35. Malaysia HDC Data Center, 15 sets of BMS, total 495 blocks
36. Mita Center of CMHK, 24 sets of BMS, total 480 blocks
37. HUAWEI Cloud Service Data Center, Karamay, Sinkiang, total 2760 blocks
38. China Securities Data Center, Southern Information Technology Center, total 13,253 blocks
39. Baidu E-town ECC Computer Room, total 440 blocks
40. Dr Peng E-town Data Center, Hainan, total 3616 blocks
41. Wuhan Data Backup Center of Tai Kang Life Insurance, total 1544 blocks
42. Kun Shan Data Center of GDS, total 1404 blocks
43. Guan Lan Data Center of Ping An Tech, total 960 blocks.
44. Wuhan Data Center of Bank of Jiu Jiang, total 562 blocks

BANK

45. CIMB of Malaysia 2 sets of BMS, total 176 blocks
46. UOB of Malaysia 3 sets of BMS, total 194 blocks
47. Goldman,HongKong branch 2 sets of BMS, total 198 blocks
48. China Merchants Bank with all branches, total up to 10,000 blocks
49. China Industrial Bank, Hangzhou Branch, total 256 blocks
50. China Development Bank, Hunan Branch, total 401 blocks
51. China Agricultural Bank, Jiangsu Branch, total 2448 blocks
52. Call Center of China Agricultural Bank, total 576 blocks
53. Bank of China, Suzhou Branch, total 389 blocks
54. Bank of China, Jiangxi Branch, total 656 blocks
55. Bank of China, Xiamen Branch, 4 sets of BMS, total 120 blocks
56. ICBC Bank, Shaanxi Branch, total 800 blocks
57. ICBC Bank, Dalian Branch, total 720 blocks
58. ICBC Bank, Yunnan Branch, 4 sets of BMS, total 320 blocks
59. China Construction Bank, Sichuan Branch, 11 set of BMS, total 1510 blocks
60. Ping An Bank, Shenzhen Branch, 2 sets of BMS, total 60 blocks
61. Ping An Bank, Beijing Branch, 2 sets of BMS, total 128 blocks
62. Bank of Nanjing, total 3330 blocks
63. Bank of Nanjing, Shanghai Branch, 6 sets of BMS, total 480 blocks
64. Bank of Hainan, total 360 blocks
65. Bank of Dalian, total 468 blocks
66. Bank Of Communications, Yangzhou Branch, total 636 blocks

SECURITIES

67. Great Wall Securities, total 432 blocks
68. China Investment Securities, 2 set of BMS, total 192 blocks
69. Nanjing Securities, total 1152 blocks
70. Chang Jiang Securities, total 352 blocks
71. CITIC Securities, Qingdao, 4 sets of BMS, total 384 blocks

SETTLEMENT OPERATION

1. China Union Pay IDC, total 256 blocks.
2. China Foreign Exchange Center, total 576 blocks
3. China Banking Regulatory Commission, Shaanxi, total 120 blocks
4. Ping An Financial Training Institute, total 1012 blocks
5. CITIC Bank Credit Card Center, 68 blocks

RAILWAY

6. China Railway Group, total 384 blocks
7. Qinghai-Tibet Railway, 34 sets of BMS, total 1088 blocks
8. Nanjing Metro
9. Wuhan Intercity Railway
10. South of Hangzhou Railway

AIRLINE

11. South Africa Airlines, 9 sets of BMS, total 873 blocks
12. China Southern Airlines Corporation, total 1168 blocks
13. WENZHOU Airport,
14. Beijing Aerospace Control Center
15. China Civil Aviation, Xiamen Air Traffic Control Center

OIL

16. China National Offshore Oil Corporation, total 320 blocks.

TELECOMMUNICATION

17. China Mobile, Zhengzhou, 6 sets of BMS, total 520 blocks

ENTERPRISE

18. UAE Teknoware, 22 sets of BMS, total 396 blocks
19. Vietnam ODS, 20 blocks x 6 bank x 1 set of UPS, total 120 blocks
20. Singapore Willowglen, 40 block x 2 bank x 2 set of UPS, total 160 block
21. Malaysia Darwell, 6 set of BMS, total 444 blocks
22. Singapore Sunez, 4 sets of BMS, total 268 blocks
23. Emerson Power, total 818 blocks

POWER PLANT

24. State Grid Corporation of China,1748 blocks
25. HUANENG Group Power Station, total 560 blocks
26. CR Power, 8 sets of BMS, total 392 blocks
27. China Southern Power Grid, 3024 blocks
28. Yunnan Power Grid, 8 sets of BMS, total 832 blocks
29. Maoming Electricity, 71 sets of BMS, total 1704 blocks
30. Zhuhai Electricity, 2 sets of BMS, total 768 blocks
31. Sichuan Electricity, 2 sets of BMS, total 380 blocks

Hospital

32. Peking University Shenzhen Hospital
33. Zhengzhou Central Hospital



Company Profile



Shenzhen Erelia Technology Incorporated Company
Stock Corporation/ Stock Code: 832515
Electronics Engineering Technology Consult & Service



Suzhou Yiqikang Electronic
Technology Co.,Ltd
Controlled Corporation
Production Center



Shenzhen Relat Electronic Technology Co.,Ltd
Controlled Corporation
Battery Monitoring System Design & Supply
chain & Marketing



Shenzhen Elpha Electronic
Co.,Ltd
Controlled Corporation
Production Center

Material Analysis Lab



EMC Test Lab



Company Profile

Relat Technology is a leading company which manufactures and design battery monitoring system with patented technologies, authorized software, professional service and competitive price.

Relat Technology was established by a team of engineer with 20 years experiences with advanced EDA design technology, robust reliability design technology & white box testing technology in Aug, 2008, registered capital 10,000,000 RMB.

BM3000 is the 3rd generation battery monitoring system which released in 2012.

Relat Technology was issued ISO9001:2008 certificated in Apr.2015.

Our parent company including Relat Technology was listed on New Three Board (stock code 832515) in Aug,2015. BM3000 passed CE & RoHS approvals.

In particular it will meet the following specifications or international equivalents.

- ✓ EN61326-1:2006 for EMC test
- ✓ EN60-4-2:2009 for electrostatic discharge immunity test
- ✓ EN61000-4-3:2008 for Radiofrequency electromagnetic field radiation immunity test
- ✓ EN61000-4-5 for Surge Immunity test
- ✓ EN55022 for Conduction interference immunity test
- ✓ EN55024 for Radiation emission interference immunity test

We have deployed battery monitoring systems in over 500 installations over the last 9 years and build a credible reputation with quality product and best service. Relat Technology found our own brand immediately in this field.

Shenzhen Relat Electronic Technology Co., Ltd.

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