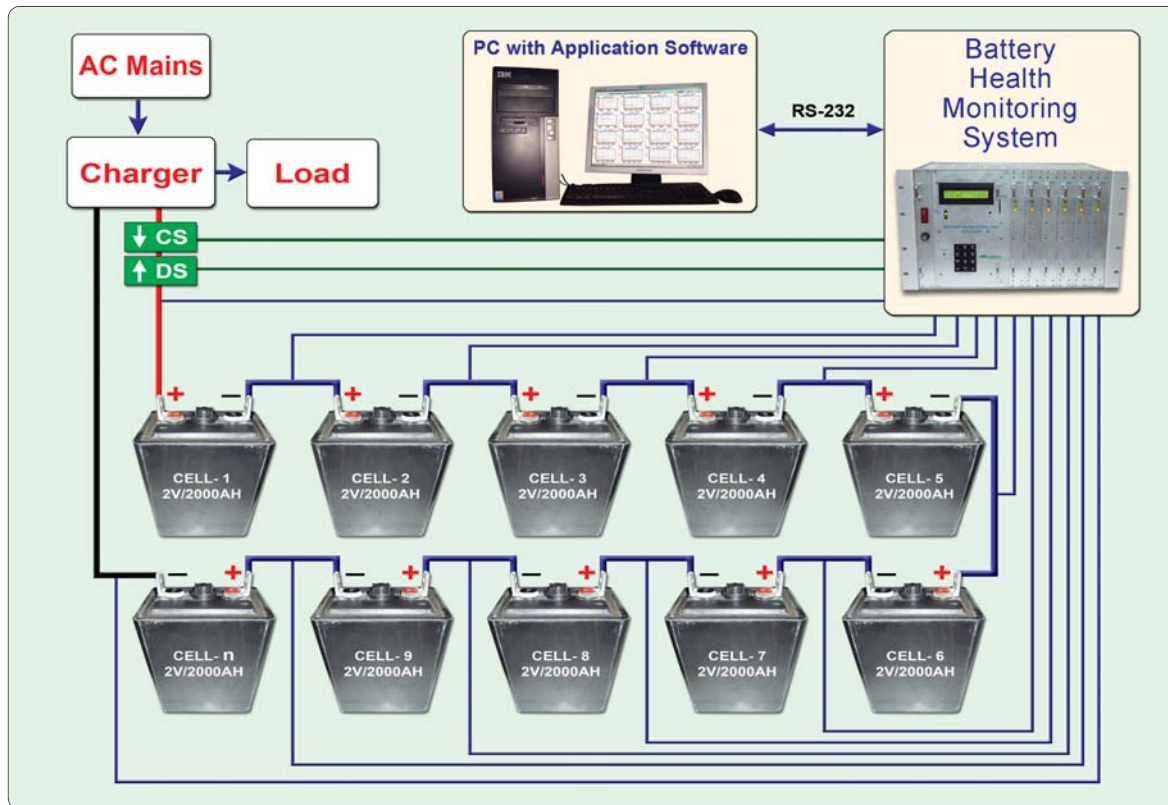


BATTERY HEALTH MONITORING SYSTEM

A microprocessor based system which measures, records the individual batteries and battery bank parameters in detail. Battery Health Monitoring System is interfaced with PC for online information and report generation.



PARAMETERS

- ❖ Individual battery voltages and bank voltage.
- ❖ Charging, Discharging and Load currents.
- ❖ Ambient temperature and individual battery body temperature.
- ❖ AC mains voltage and frequency.

BENEFITS

- ❖ Abrupt failure of battery can be determined.
- ❖ Continuous monitoring of individual batteries.
- ❖ Net charge present in the bank & backup time can be known.
- ❖ Central Monitoring for remotely placed battery banks.
- ❖ Long term cost savings over the life of the battery bank.
- ❖ Reduces break down of critical operations.
- ❖ Identifies over heating, short & open circuit in the bank.
- ❖ Charge inequalities among the batteries can be eliminated.

FEATURES

Software:

- ❖ On-line status of bank parameters.
- ❖ Displays battery state & net charge in the bank.
- ❖ Historical trends of bank parameters.
- ❖ SMS and E-mail alerts in case of faults.
- ❖ Reports regarding
 - AH Charged, AH Discharged, Net charge during the charging and discharging cycles.
 - Battery replacement details.
 - Change in battery voltages during discharging in periodic intervals.
 - Cell impedance during discharging.

Hardware:

- ❖ Stores Twenty(20) lakh events.
- ❖ Data retrieval using memory card or PC.
- ❖ LCD interface for on-line viewing of parameters.
- ❖ Alarm notification in case of faults.
- ❖ Wired remote LCD module for viewing parameters.

"A PRODUCT DEVELOPMENT COMPANY"

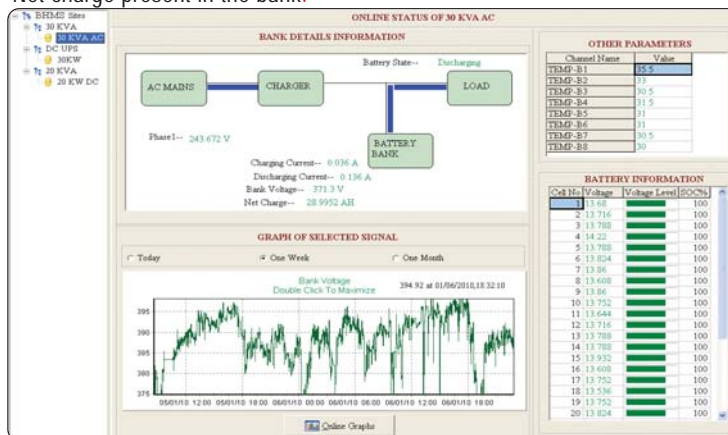
BATTERY HEALTH MONITORING SYSTEM

SPECIFICATIONS

Parameter	Range
Number of voltage channels per BMU	96 (Upgradeable up to 144)
Battery Voltage Measuring Range	0 - 24V
Current Measurement Range	0-3000A (Through Hall effect Sensor)
Voltage Measurement Resolution	0.1mV
Voltage Measurement Accuracy	0.5%
Current Measurement Resolution	0.01 Amps
Current Measurement Accuracy	1%
Temperature Measured Range	0-125°C
Temperature measurement accuracy	+/-1°C
Memory retrieval through PC	20,00,000 Events
Communication interface	RS-232 / Ethernet / GSM
Input Power Requirement	24V DC, 40W
Operating temperature range	-10 to 70°C

SOFTWARE MAIN SCREENS

Main screen shows the online status of battery bank. I.e battery state either 'charging' or 'discharging', Bank parameters, Battery voltages, Net charge present in the bank.



Online graphical bank parameter values at a glance



REPORTS

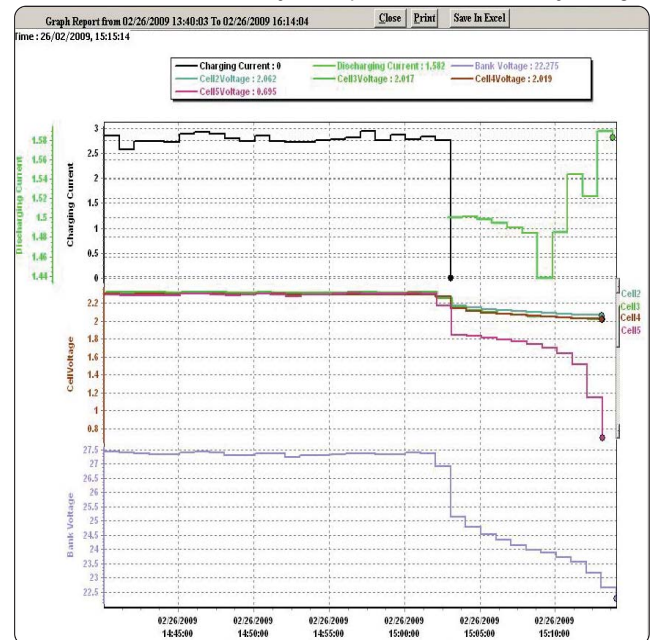
Graphical comparison of failed battery and healthy battery.



Battery State Report shows the changes in battery state i.e 'Charging' and 'Discharging' and the amount of AH Charged, AH Discharged, net charge, power failures.

Date	State	Start Time	End Time	AHCharged	AHDischarged	Netcharge
07/16/2009	CHARGING	00:00:00	00:01:00	0.006	0.034	14.205
	DISCHARGING	00:01:00	00:02:54	0	0.003	14.052
	CHARGING	00:02:54	08:49:58	0.196	2.377	11.871
	DISCHARGING	08:49:58	08:51:53	0.085	0.738	11.218
	CHARGING	08:51:53	13:55:18	0.525	0.246	11.498
	DISCHARGING	13:55:18	13:57:22	0	1.823	9.675
07/17/2009	CHARGING	13:57:22	15:04:39	0	0.431	9.244
	DISCHARGING	15:04:39	15:06:35	0	1.923	7.321
	CHARGING	15:06:35	23:59:59	0	0.101	7.22
	CHARGING	00:00:00	06:55:05	0	0	7.22
	DISCHARGING	06:55:05	06:57:49	0	0.683	6.537
	CHARGING	06:57:49	10:35:07	0	1.765	4.771
07/18/2009	DISCHARGING	10:35:07	10:38:31	0	0.968	3.803
	CHARGING	10:38:31	23:59:59	10.86	3.195	11.468
	CHARGING	00:00:00	12:39:38	3.108	5.13	9.427
	DISCHARGING	12:39:38	12:40:51	0.025	0.06	9.373
	CHARGING	12:40:51	23:59:59	1.063	1.703	8.733
	CHARGING	00:00:00	09:59:58	2.435	2.091	9.052
07/19/2009	DISCHARGING	12:18:55	12:32:57	0.2	1.275	65.888
	CHARGING	12:32:57	23:59:59	0.462	3.593	62.757
07/20/2009	CHARGING	00:00:00	23:59:59	0.562	4.103	59.21
07/21/2009	CHARGING	00:00:00	23:59:59	1.566	1.692	59.085

Historical trends of all battery bank parameters and battery voltages.



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