Battery Health Monitoring System

FEATURES

BHMS Monitors:

- Bank & Individual Battery / Cell voltages
- Battery Charging, Discharging currents
- DC Load currents (Optional)
- Internal Resistance (Calculated value at Bank in Discharge mode)
- Ambient temperature of Battery environment
- Terminal Temperature of Batteries / Cells (Optional)
- Charged AH, Discharged AH & Net charge of Battery Bank, Various reports for identifying the Failures & Utilization of Battery Bank

ADVANTAGES

- 24X7 Continuous monitoring
- State of Battery bank (Charging / Discharging / Idle)
- Identification of weak Batteries / Cells prior to failure extends the Battery / Cell life
- Helps to reduce system down time
- Performance of Battery bank & their utilization can be assured
- Remote monitoring of Single or Multiple Battery Banks - Saves time
- Purchasing of Batteries / Cells through planned schedules, Not emergency replacement
- Documentary evidence for Battery / Cell warranty issues
- Visual and Audible alarms in case of any failure
- Electrically isolated from Battery Bank

SPECIFICATIONS

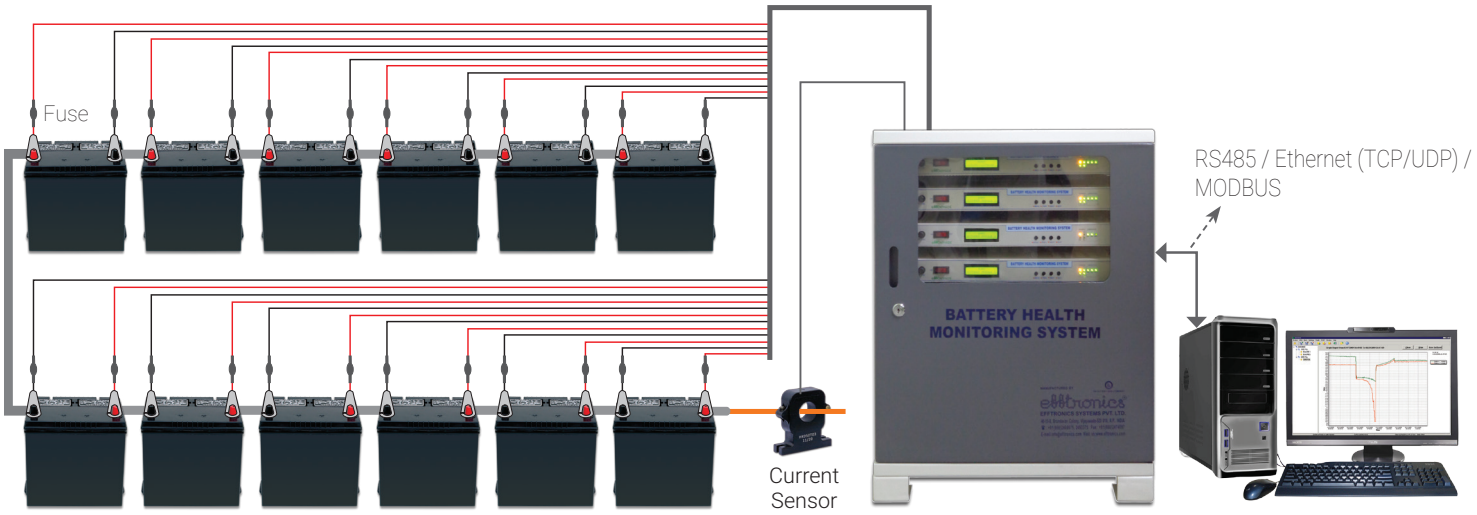
Specification	Description
Operating Voltage Conditions	
Rated Voltage	+24V DC
Operating Voltage	+18V to +36V DC
Nominal Input Current	+24V DC, 9.6W
Operating Temperature Range	0°C to 70°C
CPU	ARM based Micro-controller System
Communication & Memory Details	
Communication Interface	RS485 and MODBUS
Memory	Latest 10 lakh events permanent storage
Networking of BHMS modules	Wired

System Inputs & Outputs

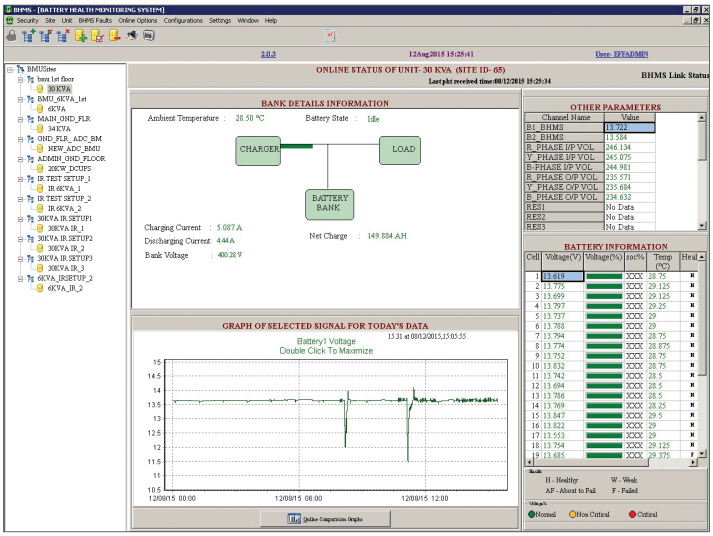
Parameter	Channels	Range	Accuracy
Voltage	28 Including bank voltage	0 - 18V / 0 - 3V	±1% in 2V to 15V, 0.5V to 2.5V
Current	2 (Optional: extendable up to 6)	0 to 600A With 0-50A / 0-100A / 0-200A / 0-600A (Selectable Sensors)	±2% + Sensor accuracy
Temperature	On-board temperature, Ambient temperature, 28 Batteries / Cells Terminal temperatures optional	0°C to +100°C	±1°C
Potential free contacts	2	24V, 1A	
Digital inputs	2	24V, 10mA	

User Interface	
Faults Indication	Buzzer
Visual Indication	LED Indications for Power ON, System Health & Communication status
User Interface	Remote and Local display for all measuring Battery / Cell parameters, Net AH, Communication & Faults

SYSTEM CONNECTIVITY



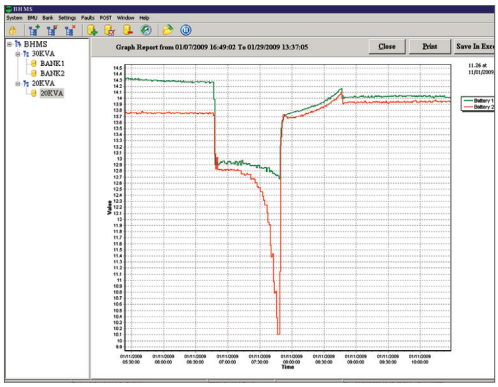
SOFTWARE



Main screen shows the online status of Battery bank state i.e; 'Charging' or 'Discharging' or 'Idle', Bank parameters, Net charge, Battery / Cell parameters

Graphical representation of Bank parameters, Battery / Cell parameters at a glance

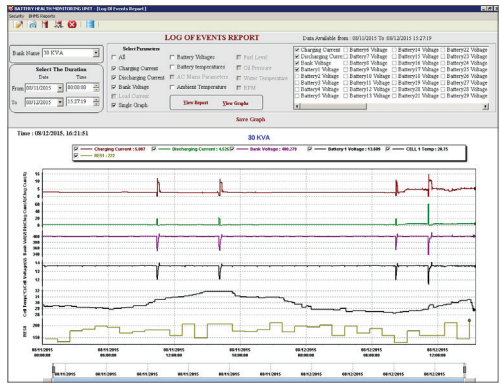
REPORTS



Graphical comparison of failed battery and healthy battery.

BANK NAME	STATE	AH	AH %	TIME (MM/DD/YYYY HH:NN:SS)			AMB. TEMP(°C)			CURRENT(A)			POWER
				START	END	DURATION	MIN	MAX	AVG	MIN	MAX	AVG	
IPS BATT BANK	Charging	12.397	4.1	11/30/201 0 00:13:14	11/30/2010 02:11:27	01:58:13	39	39	39	8.8	10.72	9.976	1.36367
IPS BATT BANK	Discharging	31.471	10.5	11/30/201 0 02:11:27	11/30/2010 04:27:14	02:15:47	38	38.5	38.25	13.44	15.6	14.62	3.46181
IPS BATT BANK	Charging	20.214	6.7	11/30/201 0 04:27:14	11/30/2010 06:26:28	01:59:14	38.5	38.5	38.5	8.065	10.88	9.422	2.22354
IPS BATT BANK	Discharging	23.067	7.7	11/30/201 0 06:26:28	11/30/2010 08:05:25	01:38:57	37.5	38.5	38	13.6	19.495	15.059	2.53737
IPS BATT BANK	Charging	11.655	3.9	11/30/201 0 08:05:25	11/30/2010 08:58:54	00:53:29	37.5	37.5	37.5	7.989	14.64	11.535	1.28205
IPS BATT BANK	Discharging	0.006	0	11/30/201 0 08:58:54	11/30/2010 08:59:02	00:00:08	37.5	37.5	37.5	5.44	5.44	5.44	0.00066
IPS BATT BANK	Charging	34.103	11.4	11/30/201 0 08:59:02	11/30/2010 12:04:37	03:05:35	37.5	39	38.16 7	5.704	12.48	10.557	3.75133
IPS BATT BANK	Discharging	0.004	0	11/30/201 0 12:41:47	11/30/2010 12:42:07	00:00:20	38.5	38.5	38.5	1.021	8.548	4.784	0.00044
IPS BATT BANK	Charging	1.332	0.4	11/30/201 0 12:42:07	11/30/2010 12:56:47	00:14:40	38.5	38.5	38.5	8.32	10.32	9.381	0.14652
IPS BATT BANK	Discharging	0.004	0	11/30/201 0 12:56:47	11/30/2010 12:58:54	00:02:07	38.5	38.5	38.5	2	9.072	5.536	0.00044
IPS BATT BANK	Charging	1.868	0.6	11/30/201 0 13:16:47	11/30/2010 13:16:47	00:17:53	38.5	38.5	38.5	5.953	8.72	7.337	0.20548
IPS BATT BANK	Discharging	0.008	0	11/30/201 0 13:16:47	11/30/2010 13:19:43	00:02:56	38.5	38.5	38.5	1.587	12.48	7.034	0.00088
IPS BATT BANK	Charging	8.138	2.7	11/30/201 0 13:19:43	11/30/2010 15:57:18	02:37:35	39.5	40.5	40.16 7	5.227	6.96	6.105	0.89518
IPS BATT BANK	Discharging	40.73	13.6	11/30/201 0 15:57:18	11/30/2010 18:56:41	02:59:23	39.5	39.5	39.5	5.968	14.4	11.712	4.4803
IPS BATT BANK	Charging	18.449	6.1	11/30/201 0 18:56:41	11/30/2010 21:01:00	02:04:19	39	40	39.5	3.453	11.28	8.48	2.02939
IPS BATT BANK	Discharging	40.692	13.6	11/30/201 0 21:01:00	12/01/2010 23:56:05	02:55:05	37.5	40	38.5	0	17.46	12.54	4.47612
IPS BATT BANK	Charging	13.494	4.5	11/30/201 0 23:56:05	12/01/2010 01:56:09	02:00:04	37.5	37.5	37.5	6.556	11.52	8.62	1.48434

Battery State Report shows the changes in Battery / Cell state i.e; 'Charging' or 'Discharging', AH value,net charge, power and other parameters.



Historical trends of all Battery bank parameters and Battery / Cell parameters