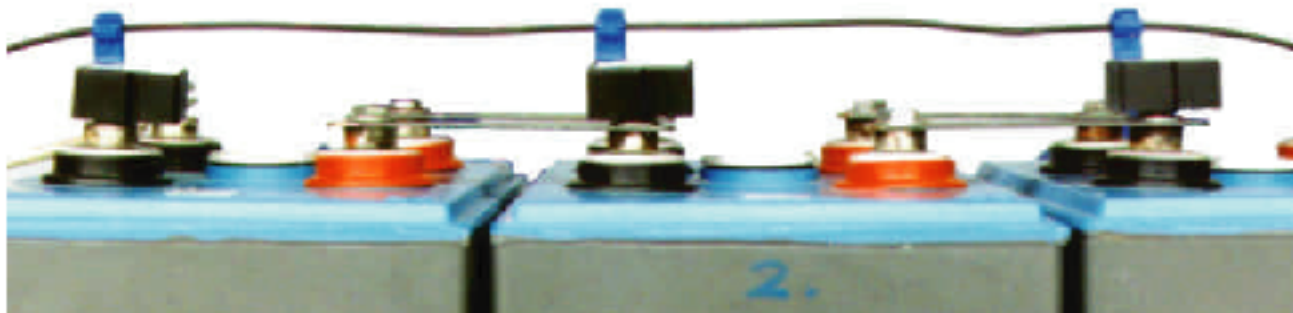


# Battery Monitors

 **CommonSense**



***All of the capabilities of standard monitors without all of the wires.***



Each Concentrator collects and stores data on up to 30 cells. A single sensing wire is connected to all clips mounted on the battery posts.

## ***Common Sensing Wire***

CommonSense is quite simply, single conductor monitoring. Single common sensing wire is connected to all the batteries being monitored. This innovation cuts hours off the installation time and greatly enhances the reliability of both the monitoring system and, as a direct result, the battery itself. There are no bulky wire harness to hook up. Installation and set up becomes a fast, one man operation.

### **Universal Application**

At the heart of the system is a Concentrator connected to a common sensing cable. The Concentrator is fully configurable and when numerous concentrators are used the system can monitor strings made up of virtually any number of cells. The concentrator receives data from each cell connected to the common sensing wire and then processes the data before handing it off to the host for logging or re-transmission to a centralized base.

Virtually unlimited string sizes may be accommodated by CommonSense – the parameters may be configured by the user according to requirements. Battery strings may be increased or decreased in size without having to purchase all new hardware. The system adjusts to it's new role under user friendly software control.

### **Measured Parameters**

Each Concentrator measures the voltage and resistance of up to 30 cells, the ambient temperature and pilot cell temperature. One Concentrator per string measures the discharge charge current using a shunt or hall effect sensor.

Float current may also be measured. Cell resistance during battery discharge is calculated along with a discharge response index. The system also calculates the state of charge and the total energy in and out of each cell.

## ***Features***

Single wire hook up

Easy to install battery clips

Status and alarm indicators

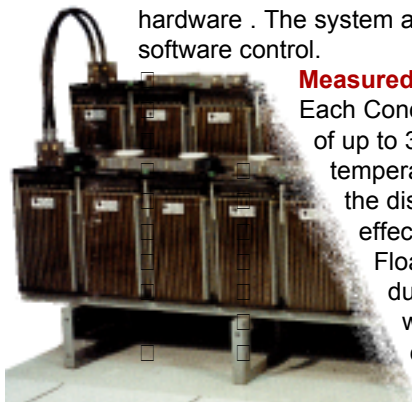
History & aging reports

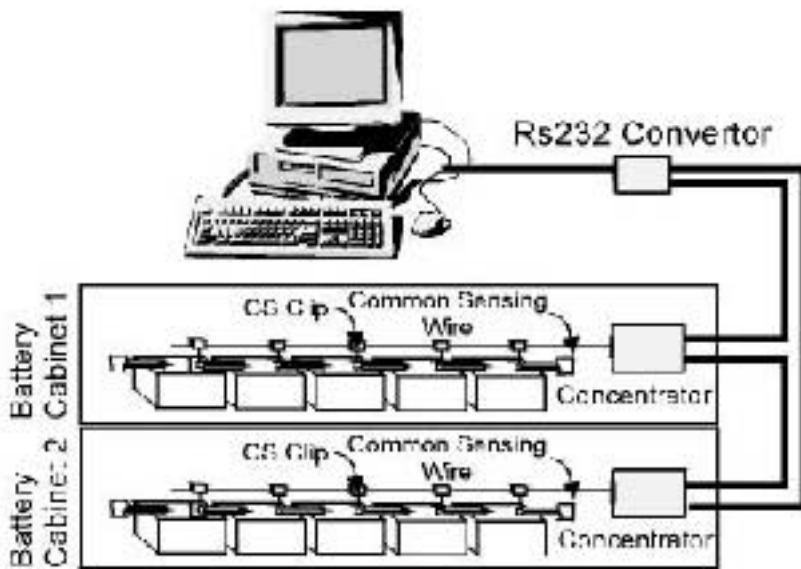
Alarm dial out capability

Fiber optic communication

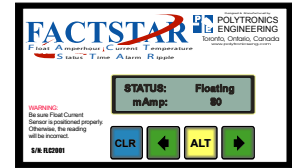
Modular design

Float current monitoring





The RS232/optical converter provides the interface to the on-site computer. Optional Data-Phone device will dial out and provide voice message about impending alarms.



Optional FACTSTAR detector can detect pending thermal runaway

The battery monitor can be installed as a stand alone system or with an on site computer.

## Alarms

The system will detect abnormalities in battery performance and operating conditions. All alarms are time/date stamped and optionally can be printed at the time of occurrence. Where applicable, upper and lower alarm thresholds are user configurable and can be relayed to remote locations using a Remote Optical Converter (standard fax message or ASCII Text Stream). Locally, abnormalities are annunciated using either audio/visual messages on the monitoring computer or alarm contact closures for customer defined auxiliary announcements. The following standard alarms shall be raised:

- |                                 |                          |                         |                          |
|---------------------------------|--------------------------|-------------------------|--------------------------|
| Battery failures:               | <input type="checkbox"/> | Battery Status:         | <input type="checkbox"/> |
| High float voltage alarm        | <input type="checkbox"/> | Floating                | <input type="checkbox"/> |
| Low float voltage alarm;        | <input type="checkbox"/> | Discharge               | <input type="checkbox"/> |
| Low cell/string discharge       | <input type="checkbox"/> | Charge                  | <input type="checkbox"/> |
| voltage;                        | <input type="checkbox"/> | Equalizing              | <input type="checkbox"/> |
| Open String alarm               | <input type="checkbox"/> | Open                    | <input type="checkbox"/> |
| High temperature alarm          | <input type="checkbox"/> | Degradation of the cell | <input type="checkbox"/> |
| Degradation of the cell         | <input type="checkbox"/> | Optical link problem;   | <input type="checkbox"/> |
| over limits;                    | <input type="checkbox"/> | Communication link      | <input type="checkbox"/> |
| Predicted reserve time          | <input type="checkbox"/> | alarm;                  | <input type="checkbox"/> |
| low (optional)                  | <input type="checkbox"/> | Battery clip error      | <input type="checkbox"/> |
| Battery Exhausted               | <input type="checkbox"/> | abnormalities           | <input type="checkbox"/> |
| Discharge response              | <input type="checkbox"/> |                         |                          |
| High/Low float current          |                          |                         |                          |
| (float current sensor required) |                          |                         |                          |

## Applications

The CommonSense system is ideally suited for mid size and larger battery monitoring applications using 6 - 12Vcells. Common applications include large plants, stations, telecom apps and UPS systems. For lower voltage cells the BTM4000 system should be used.

## Parameters Measured

- |                             |                               |
|-----------------------------|-------------------------------|
| Battery string Voltage      | Battery string float current; |
| 0 – 600V; 0.5% accuracy     | at a user defined intervals.  |
| +/- 0.2V                    | Battery string charging       |
| Battery cell Voltage        | rent.                         |
| +/- 2mV @ 6V                | Ambient temperature.          |
| Current;                    | PilotCell temperature         |
| Optional float current      | 1 per String.                 |
| 10mA - 5A (will withstand a | Ground Fault Detection;       |
| few thousand Amp            | (optional)                    |
| discharge)                  | Temperature of every cell     |
|                             | (optional)                    |

The system can support as many as 42 concentrators per optical loop. Each concentrator can measure up to 30 (2,4,6 volts) or 20 (12 volts) batteries. Operating temperature range is from: 20 °C to +40 °C.