

### ATTENTION!

\* Mechanical Engineer  
\* Maintenance Engineer

\* Electrical Engineer  
\* Battey Room Engineer

\* Ventilation Engineer  
\* Project Manager

### MSR PolyGard Battey Room Hydrogen (H<sub>2</sub>) Gas Alarm



#### SAFETY ISSUES of H<sub>2</sub> in Battery Room:

- Formation of explosive / combustible H<sub>2</sub> gas explosive situation (4 % Vol H<sub>2</sub> = 100 % LEL H<sub>2</sub>)
- Oxygen deficient atmospheres – H<sub>2</sub> being lighter than air will start displacing O<sub>2</sub> from the ceiling area to the floor level, if not properly ventilated

When designing a battery room, ventilation requirements need to be taken into consideration. Lead acid motive power batteries give off hydrogen gas and other fumes when recharging and for a period after the charge is complete. Hydrogen Gas Monitoring in the % LEL range and proper ventilation in the battery charging area is extremely important. A hydrogen-in-air mixture of 4% Vol H<sub>2</sub> (100 % LEL H<sub>2</sub>) or greater substantially increases the risk of an explosion. The concentration of hydrogen should be kept below % LEL range to provide a safety factor. Hydrogen gas is colourless and odourless. It is also lighter than air and will disperse to the top of a building.

#### MSR PolyGard Battery Room H<sub>2</sub> Gas Alarm:

The system will be able to continuously monitor H<sub>2</sub> in the 0-100 % LEL to generate audio-visual alarm and to actuate ventilation fan as per built in fan logic in the controller. The System shall consist of:

Stand Alone Single Point Controller installed outside the battery room, near the entry door. It will be connected to the remote Sensor/Transmitters (H<sub>2</sub>) installed in the battery room by a suitable screened/shielded cable. Alternatively will have an integral Hydrogen Sensor and will be installed in the battery room. The Stand Alone Single Point H<sub>2</sub> Gas Controller with display the concentration of H<sub>2</sub> in 0-100 % LEL and will have the following:

- Wall Mounted, IP 65
- Built in Key Pad for parameter setting
- LC Display
- 4 x Alarm Relays, DPDT, 5 A, 240 V AC (to actuate audio-visual alarm, ventilation fan)
- 1 x system fault relay, DPDT, 5 A, 240 V AC
- 2 x 4-20 mA analogue output for BMS or Variable Speed Drive
- 3 x Digital Inputs (for muting the alarm). The Mute Switch will be installed outside the door of the battery room or -----
- Setting password protected
- Optional, Lock/key arrangement for extra security
- 24 V DC/AC operation (optional 240 VAC – 24 VDC Plug-Pack)