

## *Battery Room Ventilation System*



Lead-acid batteries release hydrogen gas during the charging process. Proper ventilation in the battery room is necessary to ensure potentially dangerous gases are diffused. The BHS Battery Room Ventilation System (BRVS) is designed to detect hydrogen gas at low levels and dissipate the gas to prevent accumulation.

## Components

- Hydrogen Gas Detector (HGD)
- Hydrogen Exhaust Fan (HEF)
- Ventilation Stands
- Ventilation Ducts



## Functionality

The Battery Room Ventilation System (BRVS) incorporates the Ventilation Stands, Hydrogen Gas Detector (HGD), Hydrogen Exhaust Fan (HEF), and exhaust duct work into one complete system.

The HGD monitors hydrogen gas levels and provides warning of increasing levels before they become dangerous. The HGD controls the HEF; therefore, the powered exhaust fans will run when the concentration of hydrogen gas has reached 1% or greater. This feature will help a facility save money by both reducing the run time of the fans and by preventing the unnecessary escape of climate-controlled air.

The Ventilation Stands and connected exhaust duct network are designed to capture hydrogen gas with or without forced ventilation. As gas exits the batteries, it flows through a network of ducts to safely exit the building with the aid of the HEF.

When the BRVS is used in conjunction with the Electrical Distribution System (EDS), the optional Charger Shutdown disables the chargers when an excessive amount of hydrogen (more than 2%) is detected in the area. By disabling the chargers, the production of hydrogen gas is stopped. Reference literature *PL-3800 Electrical Distribution System* for more information on the EDS.

## Features & Benefits

- Increases battery room safety by monitoring hydrogen levels
- Improves battery room air quality by exhausting gases produced during battery charge
- Positive airflow shutoff
- Remote firefighter's shutdown capability (recommended per NEC 501)
- Exhaust damper on each stand ensures even airflow throughout the entire system
- Spiral steel exhaust pipe for added durability (PVC or other material available upon request)
- Pipes are mounted to the stands, eliminating both the need to attach to rafters and issues caused by high ceilings
- Custom designs available to fit all your battery changing requirements
- A complete BRVS aids in compliance with the following standards: NEC 480.9 Ventilation of Battery Rooms, NEC 501.125. (B), 501.105 (1-3), NFPA 2 Hydrogen Technology Code

Visit <http://na.bhs1.com/battery-room/ventilation/> for a free, online calculator to estimate the possible level of hydrogen in a facility and determine the necessary precautions that should be taken.

## Product Specifications

Hydrogen Gas Detector	
<b>Dimensions</b>	2.5" x 4.75" x 7" (63.5 mm x 120.7 mm x 178 mm)
<b>Mounting</b>	(4) 3/16" (4.8 mm) screws
<b>Power Requirements</b>	85 V ac to 265 V ac 50/60 Hz, or 17 V dc to 60 V dc
<b>Relay</b>	At 2% SPDT, At 1% SPDT
<b>Operating Temperature</b>	14°F to 104°F (-10°C to 40°C)
Hydrogen Exhaust Fan	
<b>Dimensions</b>	18" x 24" x 24" (457 mm x 610 mm x 610 mm)
<b>Weight</b>	Fan: 51 lb (24 kg), Rain shield and damper: 24 lb (11 kg)
<b>Mounting</b>	(4) 1.5" (38 mm) Wings, Standard 24" (610 mm) Duct
<b>Power Requirements</b>	115 V ac, Grounded
<b>Input</b>	Positive shutoff control, Normally open dry contacts
<b>Air Flow</b>	(4) fans, each rated at 850 ft <sup>3</sup> /min, total 3,400 ft <sup>3</sup> /min N+1 (redundancy), (3) fans at 850 ft <sup>3</sup> /min, total 2,550 ft <sup>3</sup> /min for 2,550 ft <sup>3</sup> (72 m <sup>3</sup> ) area
<b>Positive Shutoff</b>	Dry contact activated, manually reset
Ventilation Stand*	
<b>Exhaust Duct Network</b>	6" (152 mm) diameter pipe from rear of each stand feeds into single 16" (406 mm) diameter pipe
	Center of 16" (406 mm) diameter pipe feeds into single 24" (610 mm) diameter pipe adjoining to HEF and exiting the building

\* The dimensions of Ventilation Stands vary slightly from standard System Stands. Reference *PL-2000 Battery Roller Stands* literature for System Stands specifications. Designs can be customized to meet the needs of each facility.

