

Hatch and Door Monitoring System By Wapato Engineering



Compartment to Compartment Flooding is a major factor in vessel sinking. Here is a quote from NTSB on the sinking of the Katmai.

“The National Transportation Safety Board determines that the probable cause of the sinking of the *Katmai* was the loss of the vessel’s watertight integrity because watertight doors from the main deck to the processing space and the lazarette were left open by the crew at a time when the vessel was overloaded and navigating in severe weather, which allowed water to enter the vessel resulting in progressive flooding and sinking. Contributing to the accident was the master’s decision to continue fishing operations during the approach of severe weather rather than seeking shelter and to load twice the amount of cargo addressed in the vessel’s stability report. Also contributing to the accident was the owner’s failure to ensure that the stability information provided to the master was current and that the master understood it and operated the vessel accordingly.”

Watertight integrity through watertight doors exacerbated by stability issues.

Quickly being able to determine if watertight compartments are sealed and monitoring the crew as they go from one area to the next could be the difference between surviving and not.

The Hatch/Door Monitoring System gives a quick status of all critical doors and hatches required to maintain watertight integrity of a vessel.

The display does not have an audible alarm. This allows doors which are routinely opened, such as galley doors, to be monitored without generating annoying alarms which could result in the system being turned off.

The system is design to monitor if the door or hatch is closed, or closed and dogged. Red indicates open; yellow indicates closed but not dogged; and, green indicates closed and dogged. The display can be set up to just display open or dogged.

Hatch and Door Monitoring System By Wapato Engineering

There are a number of different sensor types from a simple switch, to more complex sensors, such as optical, other sensors are reed, inductive, and magnetic sensors. Each sensor type has different advantages.

Selecting Sensors

Optic sensors are used in areas where the sensor is exposed to harsh environment, where they are exposed to water or may be damaged. The optic sensor controller can be installed in a dry and protect area and the light is routed to the sensor location by a fiber optic cable. Optic sensors can sense a door or hatch closing up to 8 inches away so the sensor can be mounted to minimize damage to the sensor. They require a reflective surface to sense when the door or hatch is closed and are easy to install and calibrate. They are more expensive than some of the other sensor types. They also draw some current.

Reed switches sense when a magnetic field is near. These types of sensors have a short sensing range about 1/2 inch maximum. They are inexpensive and draw no power. They are sealed, and have leads or water tight connectors. The sensor is installed on one side of the door and a magnet the other.

Inductive sensors sense the presence of metal. Pricewise these are middle of the road. The sensing range is between 1/8 and 3/8 of an inch. They are designed for industrial use. The price increases with sensing range. They draw some current.

System overview

The display box contains the LEDs and the control logic for displaying the status. A single cable connects the display module to the Breakout box.

The Breakout Box consolidates the sensor wires down into a single cable.

The sensors are located on the doors or hatches

Product Features

- Monitor up to 12 Doors or Hatches with a maximum of 2 sensors per door or hatch.
- Highly Visible Indicators with Brightness control.
- The entire system runs off a 12 or 24 Volt battery and draws very little current. Current draw is dependent on the type of sensors.