



THE LEVEL

2nd Quarter 2007

8 Edition 1 Vol



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2nd Quarter Q:

Name the game that originated in India and features a board with "Home" in the center and a "Start" in each corner?

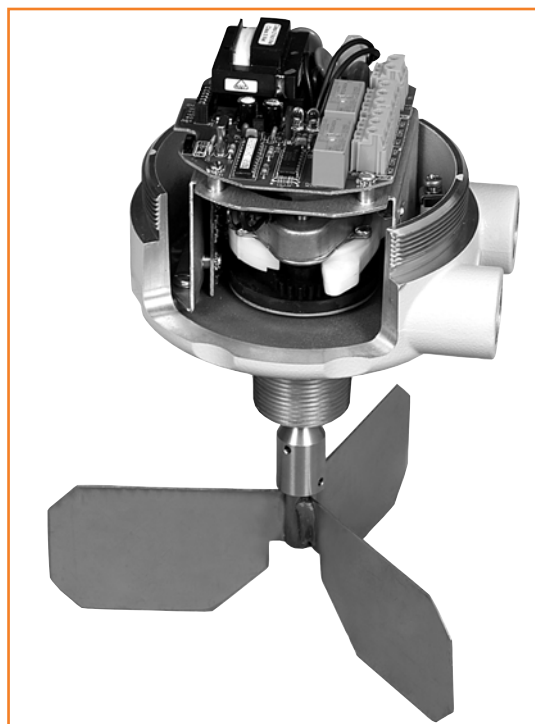


Is it really safe? *Only if it is "self-validating".*

Nearly 60% of all level sensors are point-level sensors. These types of sensors are critically important to the profitable and safe operation of your facility, whether they are used for high-level or low-level detection or for some other purpose. If a high-level sensor in one of your vessels fails what will happen? You may overfill your vessel or damage other equipment and back-up material into the fill line or clog filters and vents. You can have a mess to clean up, and to explain, and repairs to make. What's the outcome if a low-level sensor fails? Your production line can unexpectedly run out of material and you may incur expediting charges to replenish your raw material inventory. If a point-level sensor fails without warning, it isn't going to be pretty and you will have a headache and a costly situation on your hands.

Given the outcome of a point-level sensor failure you'd think they would be very costly, but they're not. The average unit price is less than \$300.00 (US), according to industry research sources. This expense pales by comparison to the cost of the effects of a point-level sensor that fails without warning. So, how do we go about preventing the expense associated with this type of point-level sensor failure? What is needed is a sensor that is "safe" to use, in regards to the outcome of its failure. This means a "fail-safe" sensor. What does "fail-safe" mean? I found a definition listed by Wikipedia. The website is www.en.wikipedia.org and it is a free online encyclopedia. According to the definition offered, "fail-safe" is a term used to describe a device that will fail in such a way that it will not cause harm or will minimize the harm caused to process and personnel. Further definition indicates that a "failure" is when the device is not able to perform its intended function.

For point level sensors a failure can occur for numerous reasons, including external and internal causes. An example of an external failure is a power outage. While this may be



infrequent, and you probably will have other problems to deal with besides your sensors, a power failure will mean your level sensor will not operate. Internal failures are potentially more numerous given the number of components that make up a sensor and the method of operation of each type of sensor. However, point level sensor manufacturers have long defined fail-safe in regards to the sensor output for power supply failure only. Most point level sensor literature and specifications will claim the sensor to include "fail-safe high/low output selection", meaning that if the power to the sensor fails, the output of the sensor will go into the alarm mode.

However, this customary "fail-safe" function offered by level sensor manufacturers does not protect "against the effects of failure of the equipment". We have a gap between protecting against the impact and results of sensor failure, and what most suppliers have been providing in regards to a "fail-safe" device.

Tech Tip : Informational Resources Available

Over the years Monitor Technologies LLC has developed white papers, published technical articles and case histories within industry journals and trade publications. These reference materials are available for review and use at the Monitor website www.monitortech.com/papers.shtml and you can also request a hard copy of these documents by contacting us at 1-800-601-5946. Titles include the following:



- > "Ensuring Successful Use of Guided-Wave Radar Level Measurement Technology"
- > "Remote & Vendor Managed Inventory Management"
- > "Continuous Level Sensor Functions Accurately In Dusty Environments"
- > "An Eye on Bin Levels"
- > "What's New in Smart Weight & Cable Bin Level Sensors"
- > "King of the Bin: Rotary Paddle Point Level Indicator"
- > "Flyash Level Measurement Solutions"
- > "Technology Review of Continuous Level for Powder and Bulk Solids"
- > "Technology Review of Point Level for Powder and Bulk Solids"
- > "Researching the Internet"
- > "Ethanol Production Level Measurement Solutions"

In addition, please visit the Level Measurement blog for more reference and discussion information on level measurement and monitoring. This can be found online at www.monitortech.typepad.com. This blog includes discussions on continuous and point level measurement technology and applications.▼

CONTINUED FROM FRONT How can we meet what is needed and close the gap? By using self-validating sensors and understanding why they truly are safe, no matter what the failure mode may be.

A "self-validating" sensor is a sensor that provides both indication of a measured process variable and indication of the validity of the measured variable or intended function that the sensor performs. In our discussion here, a "self-validating" point level sensor detects the presence/absence of material at the sensing element and continuously monitors and checks its own ability to perform its sensing function. The "self-validating" point level sensor provides two outputs that ideally are monitored independent of each other. The first indicates material presence/absence, the second output indicates the health status of the sensor itself.



Self-validation is important if you want to ensure the elimination of the effect of unexpected sensor failures. While so-called fail-safe sensors will initiate an output change to the alarm state (supposedly a "safe state") upon power system failures, ONLY a self-validating sensor will indicate the status of its ability to perform its function based on continuous internal diagnostics as well as the state of its external power supply. This is an extremely important difference to understand. Maximum protection is achieved using self-validating sensors, not "fail-safe" sensors that only take action upon power failure. ▼

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SecureCareSM PROFILE

NAME: Cathie Bonine
TITLE: Accounting Manager
DEPT: Admin
ANIV: Jan 25, 1982



Interview 11/2006

Q: Where are you from originally?

A: I'm an Elburn native.

Q: What is your favorite food?

A: Anything Italian.

Q: What customer item reminds you most of Monitor?

A: Cereal... I have purchased a lot of cereal through the years.

Q: What is the best aspect of working at Monitor?

A: The people. Over the years, I have had the privilege to work with many very special people...including fellow employees, customers, reps and vendors, etc.



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