

LS10™ SCREENING SYSTEM



DUAL-SENSING MODALITIES HELP IDENTIFY IRREGULARITIES IN LIQUIDS

Battelle's LS10™ screening system is used to non-invasively examine liquids, aerosols and gels in sealed containers. The system is fast, accurate and versatile. Scans are completed in less than five seconds with low false alarm rates. Liquids in clear and opaque glass, plastic, metal and paper containers can be screened. There are no consumables, and maintenance and training costs are low.

OUR TECHNOLOGY

The LS10 screening system combines two technologies to give fast and accurate results.

The system first uses a low power radio frequency (RF) pulse to interrogate the liquid. As the RF energy interacts with the liquid, the shape of the pulse is changed. Some energy is scattered while other passes right through with no interaction at all. An RF antenna receives the pulse after it interacts with the liquid and a computer is used to compare the received pulse to that of the initial pulse. Differences in the shape, intensity and frequency content of the pulse are then analyzed.

The second technology used in the system is ultrasonics. An ultrasonic pulse is passed through the container and the pulse's speed is measured. The speed with which it passes through the container is determined partially by the density of the liquid.

Combining the two technologies results in a more accurate determination of the liquid. Temperature compensation is employed to properly assess any changes in the physical characteristics of the liquids due to temperature.

The system can differentiate between the base substance and a foreign substance. If a threat is detected, the system provides a visual and audible alarm to alert the operator.

TECHNOLOGY FEATURES

The LS10 screening system was designed with a variety of features for ease of use and accurate foreign substance detection in a variety of scenarios.

- Dual technologies reduce false alarm rates and allow nearly all container types to be screened

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- Temperature compensation allows analysis of samples at temperatures ranging from 0-40° C
- Fast scanning times with typical scans taking two to four seconds
- Modular design for ease of maintenance
- Easy to use to reduce training time
- Upgradable detection libraries to adjust to changing contaminants or applications
- UL and CE registered product

CURRENT USE

The LS10 system has been deployed at airports around the world for more than five years. They have safely and effectively scanned more than a million containers. The systems are used to search for explosives, flammables, acids and other dangerous liquids that are being taken onto aircraft.

OTHER USES

The ultrasonic and RF technologies deployed in the LS10 system can be used in many other industries, including:

- **Pharmaceutical:** verification of ingredients used to produce pharmaceuticals
- **Medical:** verification of compounded IV medications (medication and dosage identification)
- **Border patrol:** detection of illicit solids dissolved in liquids (opioids and other drugs)
- **Food industry:** verification of ingredients and detection of spoiled products
- **Quality control:** verification of liquid inputs and outputs of production processes

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