# Sonic Reservoir System for Monitoring HPLC Solvent Levels

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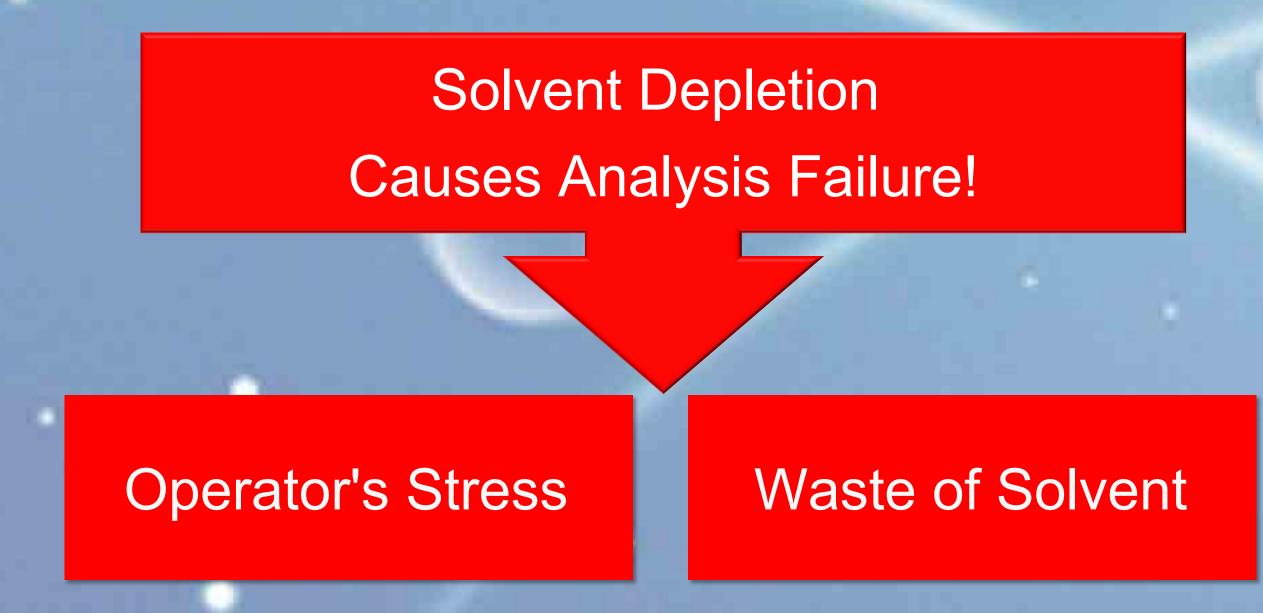
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### Introduction





#### Aim: Reduce Failures in Analytical Runs



#### Abstract

In this report, we describe the development of a sonic reservoir sensor system (patent pending) that was designed to eliminate the prospect of running out of HPLC solvents during lengthy unattended analysis. Previous attempts to develop such systems have used both light sensors and weight monitors, but both of these approaches were complicated and unreliable. Our sonic sensor system designed for both HPLC solvent reservoirs and solvent waste containers uses a non-contact sensor embedded in the cap of the 1 liter solvent reservoir that provides for real time monitoring of solvent levels. This system thus increases HPLC system efficiency for long unattended operations, reduces operator errors and stress levels and eliminates a situation where air is drawn into the HPLC pump, column and detector.

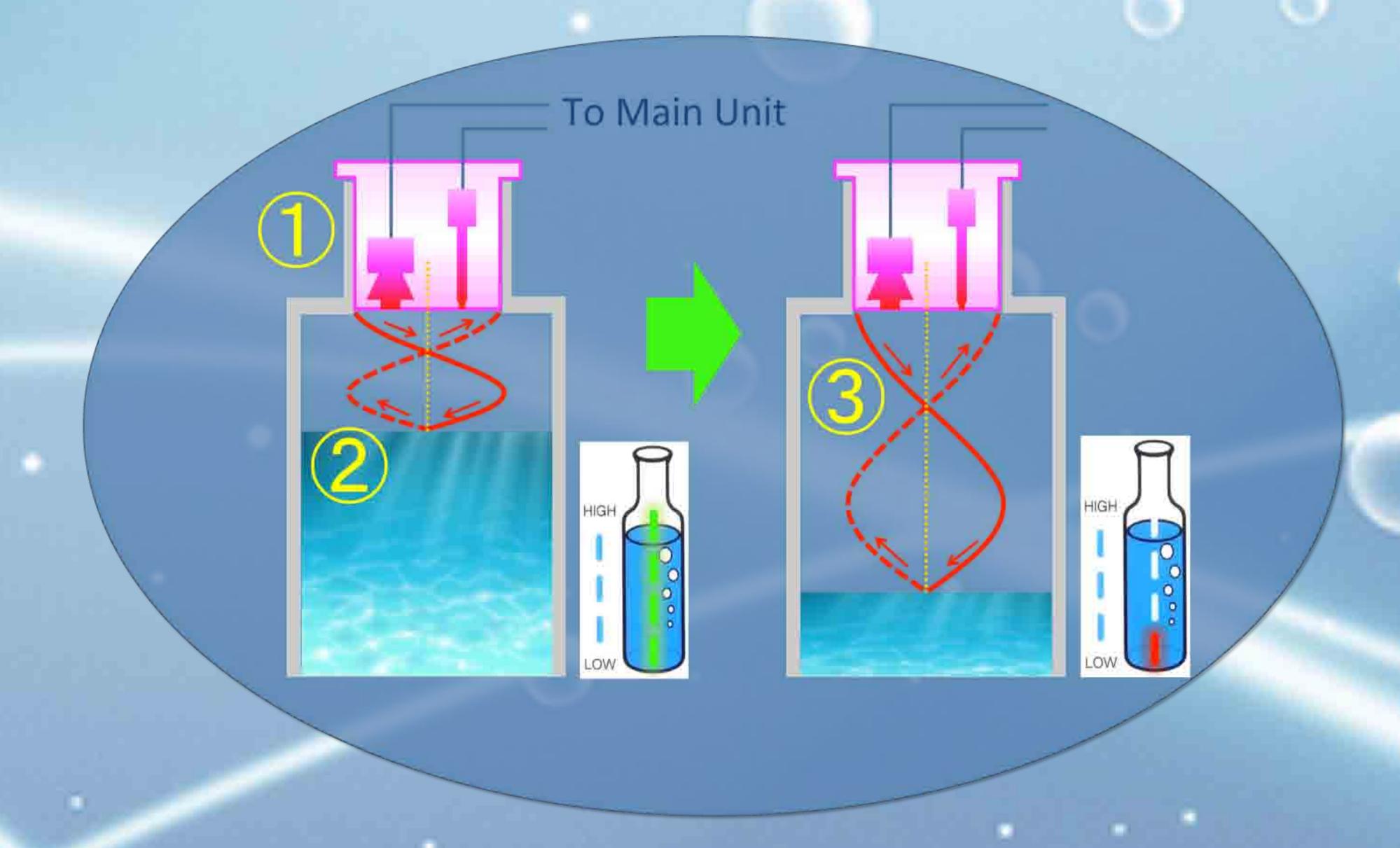




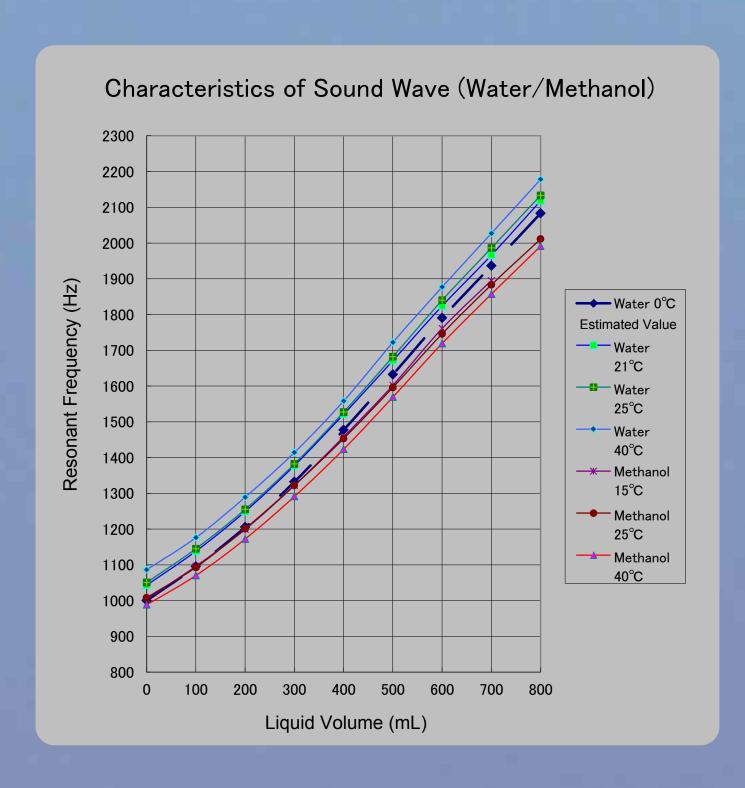


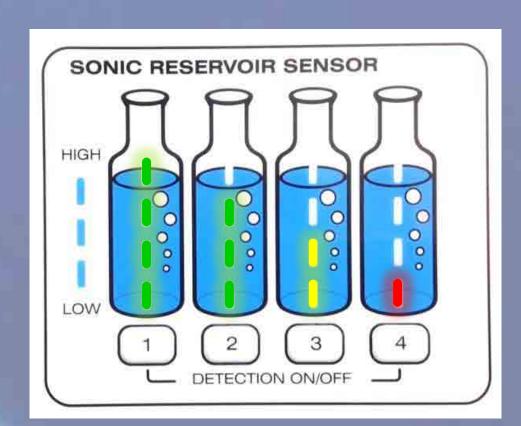


## Methodology



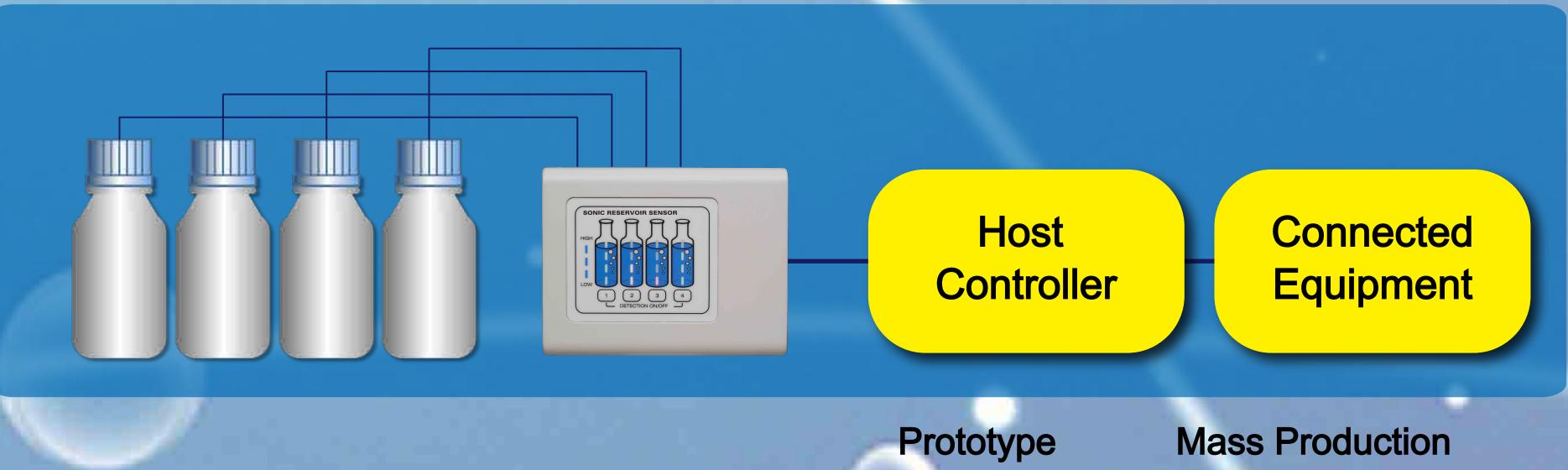
- 1 A sound wave transmitter which is positioned in the reservoir's lid sends sound waves, and a receiver monitors the resonance.
- 2 The sound signal is converted into an electrical signal which can be shown as a visible indication on a display
- 3 When liquid falls to a low level, not only does the LED indicator turn red and a beeper sounds to alert the user, but the main unit can also provide a stop signal to the connected pump.





# Results and Discussion

### Configuration



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Applicable Solvents:

Number of Sonic Level Sensors:

Applicable Reservoir (Sonic Level Sensor):

Number of Waste Liquid Sensors:

Applicable Reservoir (Waste Level Sensor):

Auto Stop Function:

Prototype Mass Production

All kinds All kinds

4 Channels 1 or 2 Channels

1000mL 1000mL

0 1

N/A TBD

To Host Controller To Host Controller

or Additional Valve Unit

### Sonic Reservoir Sensor Advantages

- Easy installation featuring Plug-and-Play
- Can measure most solvents typically used in LC applications
- Non-contact design eliminates contamination worries
- Real-time LED indication for liquid level status
- Buzzer warning for low liquid level
- Remote connection (to provide stop signal to the connected equipment)
- Waste Container Sensor (Floating Sensor) is available and will accommodate with any size and shape of waste container

Daily live demos at JM Science (Booth #3901) and FLOM Corporation (Booth #2503)

FLOM believes this product is particularly well suited to ensuring safe, long runs at night or during weekends.

We intend to offer this sensor as a reasonably priced standard product, with even more valuable features, by the Summer of 2015.