

Liquid Guardian

An Independent Test of the Beer Saver USA Ultrasonic & Electromagnetic Continuous Beer Line Maintenance System

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Abstract

Liquid Guardian is an independent draught beer dispense testing and consulting company. We provide our customers with the information they need to improve their draft beer dispensing efficiency and quality. To this end we decided to test the Beer Saver USA claims that the Beer Saver USA system could change the effective chemical cleaning cycle to once every eight weeks by retarding the growth of bacteria and yeast throughout the draft dispense system. In 2011 we tested an existing draft beer system without and then with the Beer Saver USA system to see if the system was robust enough to perform as claimed in a real world environment. Our lab test data showed that the system was cleaner on an eight week cycle with the Beer Saver USA system than it was on a one week cycle without the system.

Introduction

The Beer Saver USA system retards the growth of yeast and bacteria by emitting both an ultrasonic and electromagnetic signal. The system has a Frequency Generator that transmits a signal to a coiled conductor that runs the first six feet of the keg line starting at the keg coupler fitting. The Frequency Generator box has an LED display that lets the user know that each circuit is complete and that the signal is making it to and returning from the hose. The system also has a math comparator that continuously tests the signal to ensure it is working properly. The self diagnostic redundancy designed into the system prevents minor component failures from leading the user into erroneously thinking their draft beer line is being continuously cleaned. The system reduces the chemical cleaning cycle frequency by treating the beer as it passes through the six feet of collapsing magnetic and audio field. In addition components of the signal have a positive effect at retarding microbial and yeast growth throughout the line.

Test & Sampling Procedure

We chose a bar which had been in continuous operation in the Capital district of New York to insure that we were testing the system in a real world operating environment. The line that was chosen for the trial is over 24 feet in length. The cooler temperature is maintained at 40F. The line was cleaned with Micro Matic Beer Line Cleaner (Part No.MM-B68) in accordance with the instructions on the bottle. Faucets were disassembled and cleaned as well. The line remained in operation for seven days and then the base line test sample was taken from the faucet. The line was then cleaned using the same method as the base line cleaning. The Beer Saver USA system (Fig. 1) was then installed in accordance with the manufacturer's instructions on the same line as the base line test sample and the eight week trial of the system commenced. No cleaning of the line or faucets took place during the eight week trial except for a once a week cleaning of the exterior of the faucet using simple glass cleaner and a faucet brush. On the 56th day the system test sample was taken using the same method as the base line test sample.

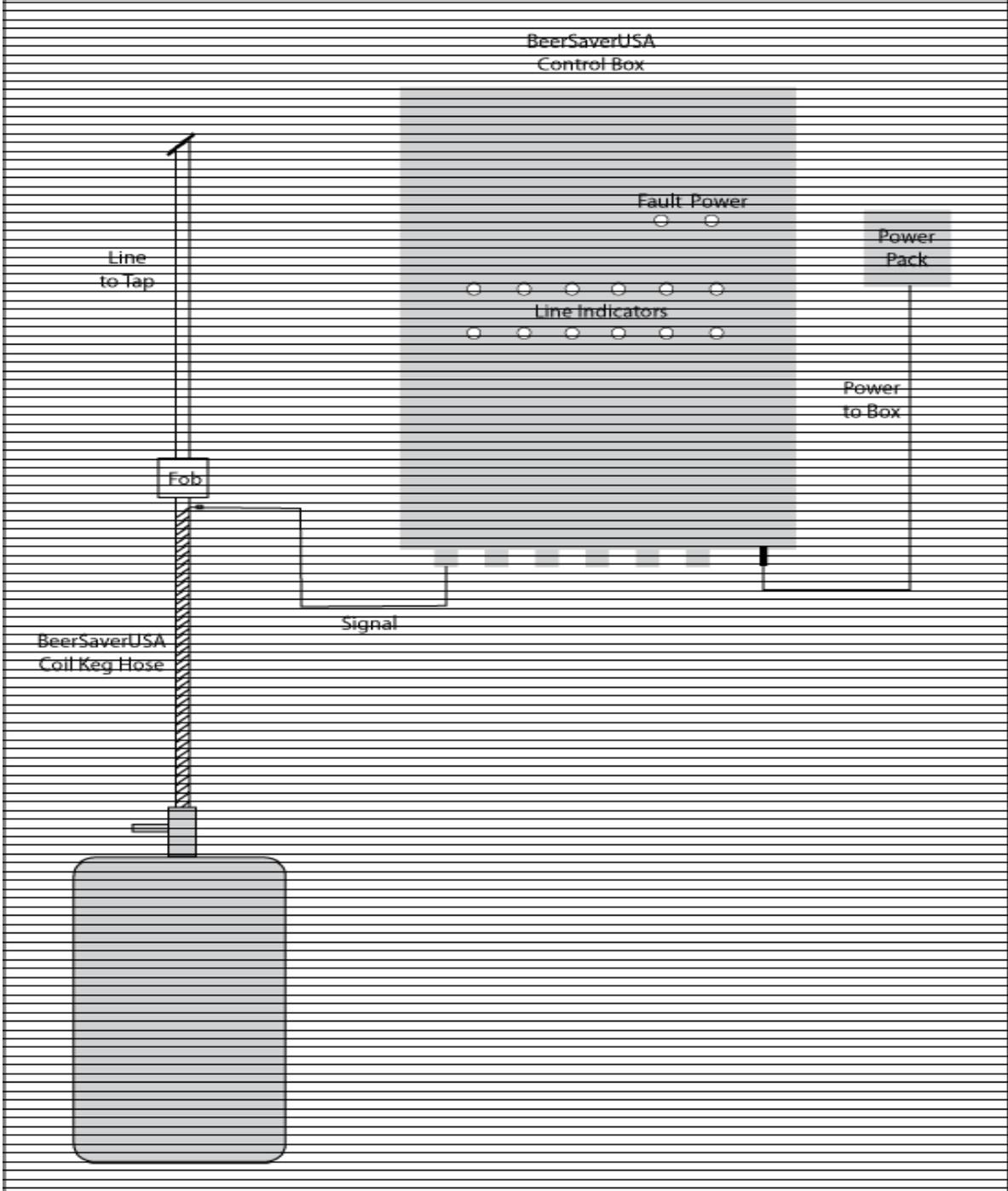


Fig1

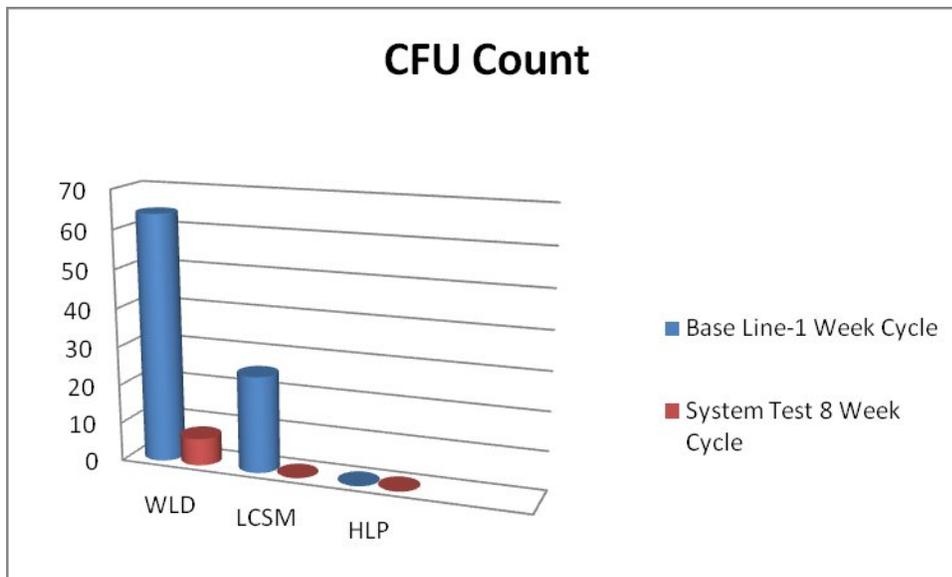
Sample Incubation Methods

- 1) Aerobic Bacteria: 400ul of Beer sample was plated on WLD (Hardy Diagnostics, Santa Maria, CA) and incubated at 90F for three days.
- 2) Wild Yeast: 400ul of sample was plated on LCSM (Siebel Institute, Chicago, IL) and incubated at 90F for three days.
- 3) Anaerobic Bacteria: 1ml of sample was inoculated in HLP (Siebel Institute, Chicago, IL) and incubated at 90F for three days.

Incubated Sample Test Results

The following are the respective colony-forming unit (CFU) counts for the respective samples from the two cleaning cycles.

	Base Line 1 Week Cycle	CFU Count System Test 8 Week Cycle	Test Type
WLD	64	7	Aerobic Bacteria
LCSM	25	0	Wild Yeast
HLP	0	0	Anaerobic Bacteria



Conclusion:

The microbial test results clearly show that the system can reduce the cleaning cycle to once every eight weeks. The fact that the test results show substantially lower microbial and wild yeast counts at week eight with the system than week one without the system indicates that further testing should be done to identify if the system can extend the cleaning cycle beyond eight weeks. The test also showed that the system is capable of producing the lower eight week microbial and wild yeast counts without the need of internal cleaning of the faucets during the eight week cycle.