



# Chemical Injection Technologies

## Product/Specification Bulletin

### SUPERIOR™ Model VAS-3 Digital Chlorine Vacuum Alarm Switch

#### GENERAL DESCRIPTION

The SUPERIOR™ Series VAS chlorine vacuum alarm switches are designed to alert gas chlorinator users when either of two critical situations arise:

1. **HIGH VACUUM ALARM** - indicates that the supply of chlorine gas has been interrupted. Either the chlorine supply is empty, or the chlorine cylinder valve has been shut off. In either case there is no chlorine gas entering the system.

2. **LOW VACUUM ALARM** - indicates that the ejector is not producing sufficient vacuum to operate the system, or a leak has occurred somewhere in the system.

Either of these situations will indicate that your system is not being chlorinated. The VAS alarm switch can be connected to a number of standard devices that will sound a loud audible alarm, send a signal via telephone lines, stop pumps or close valves, or any combination of these devices.

It is very important that operations personnel have a quick, reliable monitoring device to tell them if the critical chlorinating process has been interrupted. Many states now require vacuum level monitoring devices on all public water supply gas chlorination systems. The SUPERIOR™ Series VAS vacuum alarm switches meet or surpass these requirements.

Series VAS-3 alarm switches have a large LED vacuum level readout. The alarms will "latch" automatically after 10 seconds of alarm condition. Once latched, the alarm must be manually reset.

#### PRINCIPLE OF OPERATION

Gas chlorinators operate within a range of vacuum levels. The vacuum is produced by a water operated venturi (the ejector). When sufficient vacuum is present, a spring-opposed diaphragm in the vacuum regulator, pushes the inlet valve open and allows gas to flow into the system. The flow rate of chlorine is regulated by an adjustable valve. In a standard chlorine system the VAS switch is located between the flow rate valve and the ejector. (See typical installation)

The vacuum level in this area will always be higher than in the vacuum regulator because of the restriction of the rate valve. Since the regulator opens at approx. 4 inches of vacuum, this "monitored" area will always be above 5 inches when the system is operating. Therefore, the Low vacuum switch is preset at 5 inches of vacuum. If the ejector becomes plugged, the water supply is shut off, or a break occurs in the vacuum tubing, the vacuum level will fall below 5 inches and an alarm contact will be made.

Under normal operating conditions the ejector will produce approximately 27 inches of vacuum, if there is no chlorine flowing through the system. When chlorine gas flows through the regulator and rate valve, the vacuum level will always be below this "shutoff" point. Therefore the VAS high vacuum switch is preset at 20 inches of vacuum. If the chlorine supply is emptied or the valve is shut off, vacuum will rise to the "shutoff" level and an alarm contact will be made. In some installations, the ejector hydraulic conditions may not allow "shutoff" vacuum to reach these levels. In such cases the alarm set points can be easily adjusted on-site to operate within the limits of the system.

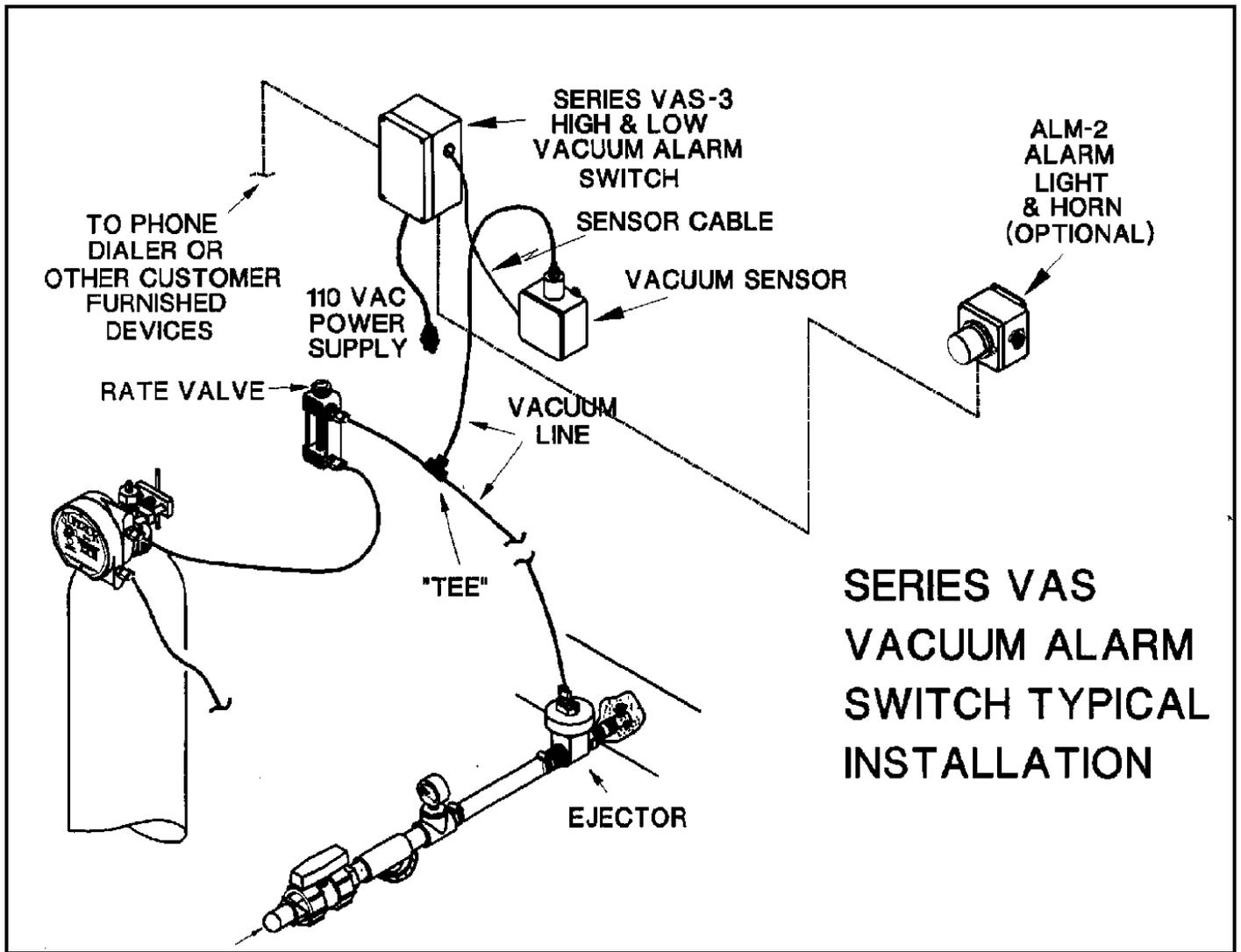
Both switches are time delayed to eliminate false alarms which may result from vacuum spikes or delays which can occur, particularly when the operation of the chlorinator is controlled by the on / off cycling of a booster pump. The time delay can be manually set from 0 to 60 seconds.

The unit is housed in a NEMA 4X U.L. listed fiberglass enclosure, and can be mounted outdoors. The vacuum sensor is housed in a separate enclosure with an oil based chlorine protection device. The sensor enclosure is connected to the alarm housing by electric cable.



#### OPTIONAL ALARM MODULE

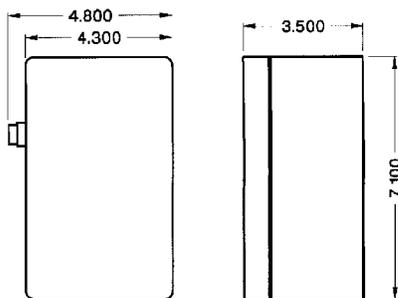
An optional horn and strobe light alarm signaling module, MODEL ALM-2, is available for connection to the VAS-3. The 95 decibel horn is easily heard from hundreds of feet away, while the strobe light is highly visible and attention getting.



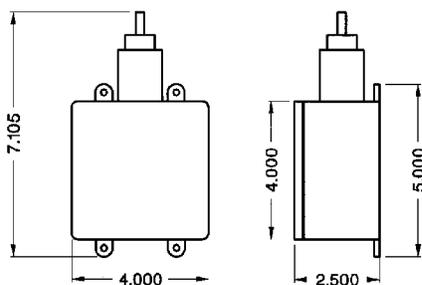
## SERIES VAS VACUUM ALARM SWITCH TYPICAL INSTALLATION

### DIMENSIONS

SERIES VAS-3 OUTLINE DIMENSIONS



V-1000 ELECTRONICS ENCLOSURE



SENSOR ENCLOSURE

### SPECIFICATIONS

Enclosure: fiberglass NEMA 4X  
 Power: 115VAC, 60 Hz (220VAC, 50Hz available)  
 Alarm relays: NO/NC Type  
 240V AC @ 5 amps resistive  
 115V AC @ 5 amps general use  
 30V DC @ 5 amps general use

Analog Output:  
 voltage: 0 to 3 VDC  
 current: 0 to 3 ma DC

Reset switch: IP 65 protection.  
 External connectors: IP 68 protection.

Indicators:  
 vacuum: 3 digit digital LED display.  
 alarms: 3 LED indicators/HIGH, Low and Latch.  
 polarity: 1 LED indicator for pressure.

Temperature range (system):  
 storage: -30 C to 70 C.  
 operating: -20 C to 50 C.  
 vacuum temperature range: -40 C to 50 C.

**Chemical Injection Technologies, Inc.**  
 4796 S. US 1, Ft. Pierce, FL, 34982, USA  
 (772) 461-0666 Fax: (772) 460-1847  
 E-Mail: chlorine@gate.net